Telephony.

THE AMERICAN TELEPHONE JOURNAL

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"Don't Let Them Get Your Goat!"

When we pointed out last week the wide importance of the Postal Telegraph-Cable Co.'s proposition to the Independent telephone companies of the country, we did not realize how promptly its vital significance would be perceived and acted upon. An instance has already come to our notice, however, involving a certain important group of Independent systems. These had appeared for some time past to be in a fair way of becoming Bell properties. They are now practically certain to remain Independent, owing solely to the Postal's offer.

The holders of the majority of stock in these companies are, with few exceptions, typical of many majority stockholders of Independent plants. That is, they are investors, not operators. They have never entered into the actual business of Independent telephone operation. On the contrary, they are probably wholly out of sympathy with its trials and successes. The sentiment of the game, the sturdy and successful fight of the men in it against almost overwhelming odds, is to them virtually meaningless. The question of obligation to the public to continue competitive operation does not appeal to them. Their chief interests lie in lines other than the telephone, their money is invested in telephones as it might be in bank stocks or railway bonds. They are after profits. If, by selling out to the Bell they can realize larger and more immediate profits, they are altogether likely to listen to a proposition. And the Bell is always willing to buy, and always willing to pay a generous bonus above actual values for any kind of Independent property.

In this instance the companies are all sound, going concerns. Most, if not all, are paying satisfactory dividends. The plants are maintained at a high point of efficiency and are in excellent shape physically. They are aggressive competitors of the Bell. Naturally the latter would be willing to pay handsomely for the privilege of altering these conditions and wiping out competition in that territory. And it is believed that tentative proposals, at least, had been made with that end in view and had been considered.

Now the announcement is made by one of the largest stockholders that he distinctly favors retaining the lines in Independent hands and entering into an arrangement with the Postal Telegraph. With this conclusion, he declares, a majority of his associates now agree. It is now believed certain that no deal with the Bell will be made, and that an important group of Independent properties will take on new life and vigor, instead of being sold out, solely the result of the Postal's broad proposition to cooperate generally with the Independent telephone systems throughout the country.

This is precisely the result which TELEPHONY foresaw. We believe, as stated last week, that the few wavering interests will feel new confidence in the integrity and continuing strength of the Independent movement. We believe that the "weak brother" here and there, who has been stampeded by the continued outpouring of publicity copy asserting that the Bell will shortly dominate the entire industry, will again feel his spine stiffen and his fists double; that he will buckle down to his old joyful job of "beating the tar" out of his ancient competitor; that, should he become armed with those wonderful "long distance facilities," which are so much advertised, although relatively so seldom used in actual practice, he will realize that the last talking point is taken away from the Bell and that he is stronger today than he ever was.

It must not be forgotten that practically every city of importance in the country has its Independent system, that the Postal lines will fill many gaps between these cities and adjoining territory, and that every Independent telephone plant not now connected can arrange to reach them over the lines of its neighbors and those of the Postal company if it so desires.

If you have doubts of the enduring quality of the business, compare the telephone situation twenty years ago, as graphically set forth by TELEPHONY'S cartoonist in this issue, with the situation today, remember that the Independents did it, and follow Kelsey's ringing injunction: "Don't let them get your goat!"

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Saving Five Cents a Day for the Company.

The five-cent savings bank, in more than one big city, is the most popular financial institution. In California the nickel is important because it is the smallest coin in popular circulation. But the railroads have begun to appreciate the importance of the nickel by a modification of the Scotchman's proverb that "many a mickle makes a muckle," and some of the biggest, richest, and best managed roads in the country are pushing the five-cent daily saving idea.

Every employe of these roads is urged to put on his thinking cap, attend to business and see to it that he personally saves for the company a nickel a day. And these railway people are seeing it in the right light, and going into the plan with enthusiasm. Firemen are a little more careful of coal on the grades; office men watch supplies a little more carefully; the men on the right of way lose one or two less bolts, or set one or two more ties each day than formerly; and so it goes, from the president's office all along the line and back to the round house.

Let us see what it would mean to the telephone industry if every employe would save a nickel a day beyond what he is doing at present, for the company.

The Government report for 1907 showed that the industry supplied work for 144,169 people. The yearly savings these people could make, at a nickel a day, would be $2,162,535. This sum would pay 8 per cent. dividends on $27,031,700—capital enough to supply the necessary plant to give telephone service to 193,084 people.

This is what nickel-a-day saving by telephone employes would mean to the public.

One can play with these figures in various ways, to show that their magnitude is sufficient to make the plan worth promoting. Probably the employes themselves will have to show their willingness, and that they like the idea. If toll operators will work a little harder to save one lost call, the men at the frame will be more careful of heating coils, and so on all along the line the end could be very comfortably achieved.

We should like to know how the idea strikes our readers.

Use a Shotgun.

The following cry for help comes from one of our readers in Iowa: "There are a large number of our subscribers that have automobiles and our trouble is that some of them will take the batteries off the telephones and use them on the automobile and replace them with some old worn out ones and then put in a complaint to us that their telephone was out of order. This means that the company must send a man out and replace them with new ones, taking his time, extra batteries and making bad service all around."

The writer asks if similar trouble has been experienced elsewhere and wants to know how to stop it. TELEPHONY will be more than glad to hear from the afflicted in other portions of the field and hereby solemnly pledges its powerful assistance in making an end of so detestable a practice—in putting the "kibosh" on this new form of aggression on the part of owners of automobiles.

We have been awakened at dead of night, with every nerve aquiver, by the rapid-fire explosions of a car driven without a muffler by one of these maniacs through the otherwise silent and ghostly street; we have dodged the same madman on the public thoroughfare countless times, usually escaping only by the skin of our teeth; we have taken his dust on the highway and been nearly asphyxiated by the execrable fumes of his burning gasoline; we have loathed him for a low-browed brute and a potential murderer, and have long and ardently desired to bathe our hands in his blood; but never before have we known him to fall quite so low in the moral scale as to rifle an unoffending telephone of its batteries. Kicking a blind beggar in the ribs and stealing his petty hoard is a dignified avocation by comparison; robbing the poor box in a church, a noble calling. Our personal advice in this case is very brief: Shoot him!

N. B. We do not own an automobile.

Telephone Inspires Outbreak in Sioux.

A clipping from the Gordon, Neb., *Journal*, sent us by W. F. Hankins, one of TELEPHONY's subscribers, applies a little Sioux language to the local company, as follows:

> The telephone management has decided to lay the wires underground on Main street from Central to south of the railroad, and on Second street from Oak street to Central. That is all right. Now, "enockanee." It has been almost two weeks since any one "helloed" to us.

Mr. Hankins explains that "enockanee" means "hurry." Telephony as commonly practiced has inspired eloquence in many languages on the part of enthusiastic or infuriated subscribers, but this is the first instance, to our knowledge, where an Indian tongue has been employed.

Saving Souls by Telephone.

"Telephonic evangelism" is the very latest. It is to be tried out in a campaign by the Chicago Christian Endeavor Union to save 100,000 souls within the year. Business methods are to be applied to the problem, it is stated, among which will be the liberal use of the telephone after the manner of a salesman endeavoring to interest a customer.

"The telephone is to become a missionary," says the superintendent of the evangelistic department of the union. "Many of the young men have made lists of unconverted friends and will begin at once a telephonic evangelization. They will call these persons up on the telephone at their places of business. Tell them their mission, interest them by stating their desire in a real businesslike way, explain the benefits of religion, and ask them to join some church.

"Then, just as a business man would do, they will follow their call up by a personal visit. The matter of salvation will be gone over as two men would discuss the value of a vital business venture. The young evangelist will attempt in this manner to induce his friends to come to one of our meetings or go to church the following Sunday. Once a wedge has been placed, the rest ought to be easy.

"The telephone has become one of the most vital instruments in the business world to-day. Why not, then, use it for God?"

All of which goes to show that the uses of the telephone are multiplying every day. What is the next?

"LEST WE FORGET!"

JULY FOURTH, NINETEEN ELEVEN—AN INDEPENDENCE DAY INDEED!

Bell Lowers Rates at Milwaukee.

The Wisconsin Telephone Co. has announced a reduction in its rates in Milwaukee, Wisconsin, as follows: The measured rate service, formerly charged at $48 per annum for 800 calls, is now given at $50 for 1,000 calls, with a reduction in the rate of calls above 1,000. Extension telephones have been reduced from $9 per year to $7.20.

Bell Company's New Exchange in New York.

The New York (Bell) Telephone Co. is about to begin construction of its new telephone exchange building in New York City. Covering a plot of 22,000 square feet, it will extend from Lispenard to Walker street, between Church and West Broadway. It will be a seventeen-story structure at first, with foundations adequate for one of twenty-five stories, the ultimate height. The building will be used by the company for its main long distance switchboard which will have 200 positions, and be the largest in the country. It is planned to have three boards to take car of 20,000 subscribers, and provisions have been made for the handling of calls of 60,000 local subscribers when the building is complete.

Keystone Not to Take Over Interstate.

A report having gained some currency that the Keystone (Independent) Telephone Co., of Philadelphia, was preparing to take over control of the Interstate Telephone Co., of Trenton, N. J., C. E. Wilson, general manager of the first named corporation, states that nothing of the kind is contemplated.

Takes Over Portion of Rocky Mountain Bell System.

The Pacific (Bell) Telephone & Telegraph Co. has taken over from the Rocky Mountain Bell Telephone Co. the properties of the latter corporation in the Idaho panhandle, including all the territory north of the Salmon River.

IF ARMOUR REALLY DID GIVE CHEAP TELEPHONE SERVICE

HE WOULD MAKE HIMSELF ONE OF THE MOST POPULAR MEN IN THE COUNTRY, AND WOULD BE A WHOLESALE BENEFACTOR, NOT ONLY OF THE BUSINESS WORLD, BUT OF THE AVERAGE AMERICAN HOME.

The New York Times announces that there is hope of telephone competition in New York City and that Armour, the great packer of Chicago, is said to be back of the plan.

The idea is to buy up certain franchises in the State of New York, especially to get an entrance into New York City, and to give to the citizens the benefit of telephone competition and of actually CHEAP SERVICE.

The idea of cheap telephone service is going to grow in the United States, and eventually it is going TO BE REALIZED, despite the power of any monopoly or the profits of any group of individuals.

The price charged by the Bell monopoly is preposterous—there is no worse form of extortion among all the extortions in the United States.

A man who lives in the suburbs thirty miles from a big city gets a commutation ticket. The railroad carries his two-hundred-pound body back and forth twice a day for twenty-five cents a day. If he wants to talk to his house twice a day THE TELEPHONE COMPANY CHARGES HIM SIXTY CENTS, and charges for the wire besides.

In other words, the telephone monopoly charges more than twice as much to carry over a wire a human voice, which weighs nothing, as the railroad charges to carry a two-hundred-pound man over thirty miles of solid steel rails.

And the railroad has to have terminals, and locomotives, and power; whereas, with the telephone, the man's own voice is the chief power involved.

Armour of Chicago is a man who COULD give the people of this country the benefit of cheap telephone service—if he should make up his mind to do it. He has proved his ability as an organizer; he is a man of great wealth and of unusual industry and application. It is notorious that his working hours are from seven in the morning until six in the evening, and that work is his only amusement.

The idea is not visionary, for Armour, associated with others—with the Harriman estate, with Kennedy Todd and De Forest of New York, and with the receivers of the Chicago subway as a body—HAS ALREADY BEGUN THE WORK OF GIVING GENUINELY CHEAP AND EFFICIENT TELEPHONE SERVICE TO THE CITY OF CHICAGO.

In Chicago the receivers of the subway have installed already more than twenty-five thousand automatic telephones. They give an UNLIMITED service for $85 a year—about one-half the charge of the Bell monopoly. They give UNLIMITED telephone service to private families for less than thirty dollars a year. With a full extension of their system even the poorest families will use the telephones, AND BE BETTER OFF AT THE END OF THE YEAR THROUGH THE SAVING OF CARFARE.

The charge for pay stations with this new system, which is backed by Armour and the others, is three cents per call, and the intention is to lower this rate eventually from three cents to one cent. AT ONE CENT THE PROFIT WOULD BE ENORMOUS, WITH THE ECONOMIES OF THE AUTOMATIC TELEPHONE and a sufficient number of subscribers.

The right plan would be, of course, for the business men of New York who pay enormous tolls to the telephone monopoly to get together, to bind themselves to take a new service—an automatic cheap service with certain guarantees—and through pressure of public opinion compel the granting of a franchise to an automatic company charging the lowest possible rate.

But it is difficult to get business men to unite; difficult to make them resent effectively even the most palpable extortion.

The chief hope lies in the courage, energy and business knowledge of such a man as Armour, who has the money, who is not frightened by the power of a monopoly, and who might, if he chose, be remembered as one of the real benefactors of the country by breaking down the telephone monopoly and making of the great telephone convenience a blessing within the reach of all and as cheap, in proportion, as the national postoffice.—Editorial in New York American and Chicago Examiner. Copyrighted by them.

Is Greater New York to Have an Independent System?

Armour Interests Rumored to be Back of Deal Whereby Control of American District Telegraph Co. of Brooklyn Passes to Detroit Broker—Franchise Said to be Sufficiently Broad to Permit Telephone and Telegraph Operation Anywhere in State

A controlling interest in the American District Telegraph Co., of Brooklyn, has just passed into the hands of F. M. Delano, a broker, of Detroit, Mich. It is stated that the franchise of this concern, which is independent of either the Western Union or Postal Telegraph companies, or the Bell telephone companies, is sufficiently broad to cover telephone operation in Greater New York. If this be the case it is more than probable that the system will be transferred to Independent telephone interests and that the development of a competing system in the metropolis will be begun at once.

Mr. Delano's backers are not known. Rumor connects the Armour interests with the deal, but no confirmation could be obtained at the Chicago offices of Armour & Co. On the contrary, all knowledge of the matter was denied. Nevertheless, the rumor persists. It is insisted that the Armour interests are pre-eminently the ones to actively engage in the establishment of a competing system in New York City, having unlimited financial resources, and also having back of them the experience in Chicago, where they are backing the installation of the automatic system.

Mr. Delano, in response to an inquiry from TELEPHONY, telegraphed the following statement:

> In reply to your telegram will say, yes, I hold a large control in the American District Telegraph Co., of Brooklyn, N. Y. I have taken it over because of the unusually broad and liberal privileges conveyed by its charter, granted many years ago, and with many years yet to run. The rights conveyed under it cannot be obtained today. The company pays good steady dividends on its capital stock now, and is capable of enormous development along the line of transmission of intelligence by electricity in any form. I have made no definite plans yet as to what I will do with it, and therefore cannot answer that question. I had no intention of giving the matter the publicity it has attained through the press, but now it is before the public, it is only fair that I should answer inquiry as far as I consistently can. (Signed) F. M. Delano.

It will be observed that Mr. Delano gives no intimation as to who his backers are. He has been a well known broker in Detroit for some thirty years. In 1878 he placed the original Michigan rights for the Bell Telephone Co., since when he has been interested in several important promotions. He is said to be well connected in Detroit, but no information is available in that city indicating who is behind him in this deal.

At the New York offices of the Western Union Telegraph Co., the New York (Bell) Telephone Co. and the American (Bell) Telephone & Telegraph Co., all knowledge of the transaction was denied.

The American District Telegraph Co., of Brooklyn, has no connection whatever with the American District Telegraph Co., of New Jersey, which is a subsidiary of the Western Union, and which is the parent of a number of A. D. T. companies throughout the country. The New Jersey corporation at one time engaged the Brooklyn company in a lawsuit, in the endeavor to establish the right of the larger company to the exclusive use of the name. The action was unsuccessful.

The Brooklyn company was organized in March, 1872, by a number of prominent business men of Brooklyn Heights. It operates under a charter granted by the state under the laws of 1848, which, it is said, gives it the right to engage in the telegraph or telephone business anywhere in the state of New York. It has always, however, confined its activities to the operation of messenger, patrol and burglar alarm service. Its president is Tunis J. Powell. Henry W. Kilbourne is secretary. The latter, in an interview, intimated that the Armour interests might be behind the sale of the controlling interest.

The attitude of the business men of Greater New York toward the possibility of the establishment of an Independent system there is fairly well set forth in an editorial in the *Evening Journal*, printed in part on the opposite page. That public support for such a company would be heavy has already been demonstrated by the Great Eastern Telephone Co., of which D. A. Reynolds is president, which has been for some years engaged in the effort to establish through the courts its right to operate a telephone system in Greater New York under franchises granted many years ago in New York and Brooklyn. The Great Eastern had no difficulty whatever in securing thousands of signatures to contracts for service, conditioned upon the establishment of its rights and the building of the system.

The disposition of the A. D. T. company's control will be watched with the greatest attention by the entire telephone field. Should it develop that Independent interests are really back of the enterprise, there is little doubt that New York York City will shortly have a comprehensive and thoroughly modern competing system, and that the Independent lines, which now encircle it, will at last find a terminal in the metropolis.

A. T. & T. Stock, Recently Listed on the Paris Bourse, Falls Into Bad Odor Immediately.

Wall Street was greatly interested a few days ago by reports from Paris showing that the stock of the American (Bell) Telephone & Telegraph Co., recently listed on the Bourse, had succeeded almost immediately in getting in a bad light. It appears that no announcement of the proposed issue of $50,000,000 new stock had been made to the Banque de Paris et des Pays-Bas, which is handling the stock in Paris. This fact, coupled with the decline of several points on the American markets, which followed the publication of the proposed increase, caused a very uneasy feeling among French brokers and investors. As a consequence, the Banque de Paris declared all transactions made on the Parquet of the Bourse on the day it was listed would be cancelled at the option of the brokers who handled the stock. About two-thirds of the buyers, it is stated, took advantage of the bank's offer and cancelled their deals.

Bankers in Paris say that this occurrence has not only placed the A. T. & T. securities in bad odor, but that it will probably seriously affect confidence in any other American securities now listed on the Bourse, or which it may be sought to introduce.

Working to Complete Chicago Connection.

Southern Independents are pushing toward completion the work which will give them entrance into Chicago. As soon as the line between that city and Indianapolis is finished, the problem will be simplified, as Louisville has connection with Indianapolis and can handle business over a wide territory in the South. It will strengthen Independent work greatly to be able to advertise direct connection with Chicago, for a large volume of business is transacted between that city and points south of the Ohio river, which the Independent companies can easily acquire when they are able to offer the service.

Hutchinson to Examine Books of Missouri & Kansas Bell to Determine New Rate Schedule.

The books of the Missouri & Kansas (Bell) Telephone Co., in Hutchinson, Kans., will be examined by the city commissioners in order to determine the rate of profit that the plant is earning. If it is found that the plant is earning more than 6 per cent. on the investment, an ordinance will be introduced which will lower the telephone rentals to a point where but 6 per cent. will be earned.

The investigation will be under the charge of G. W. Winans, commissioner of finances of the city, assisted by Commissioner Pollock, who has charge of public utilities.

The state law, under the public utilities bill that was passed during the last session of the Kansas Legislature, provides that telephone rentals shall be so fixed that the telephone companies shall be permitted to make a reasonable profit on the investment as well as to enable the municipalities to regulate rates.

C. W. McDaniel, general commercial superintendent of the Bell company, contends that the rate of earning is not as large as it should be and requests permission of the city to increase the rate if, after examination, it is found that the earnings of the company are less than 6 per cent.

Rate Adjustment by City Temporarily Restrained at Wichita—Company Offers Temporary Trial.

Judge John Pollock, in the federal court in Kansas City, Kan., has granted a temporary restraining order against the city of Wichita, Kan., to prevent the enforcement of an ordinance requiring the Wichita (Bell) Telephone Co. to lower its rates. No date was set for hearing the case. The petition of the Wichita Telephone Co. asserted that the city sought to arbitrarily fix and lower the telephone rates in that city to a price where the company would lose money in maintaining its services. The company asks that the present rate be allowed to stand.

The company has just issued a circular letter to its subscribers, offering to try the rates of $48 for business and $24 for residence service for the months of June and July. It promises to do everything in its power to make the operation of the system profitable on this basis, but, if unsuccessful, it states that it will, on August 1, impose such higher schedule as the law will allow.

Rural Telephone Lines Being Formed With Government Aid Throughout Saskatchewan Province.

With the aid of government assistance thirty new rural telephone companies were organized in Saskatchewan, Canada, between May 1 and June 10. The total capitalization was nearly $100,000, an average of $3,000 each. These companies will build 750 miles of wire and will serve about 800 subscribers at the start. Previous months have witnessed an even greater record of organization in the province.

The largest company of this group is at Yorkton. It is capitalized at $8,100, will build fifty-seven miles of wire and serve eighty-one subscribers. The smallest is at Serwin, capitalized at $1,000 to build four miles of wire and serve six subscribers.

New companies are now forming, not only in the districts which have been settled for a long time, but also in those settled within a year or two.

Tri-State Declares Common Stock Dividend.

Directors of the Tri-State (Independent) Telephone & Telegraph Co., of Minneapolis, has just paid the regular 3 per cent. semi-annual dividend on the outstanding common stock of the company. This is the sixth dividend paid on the common stock. An annual rate of 6 per cent. is also maintained on the preferred.

Joplin Home Statement for Six Months.

The Home (Independent) Telephone Co., of Joplin, Mo., has issued a statement showing its revenue account for the six months ended April 30. The figures, compared with those for the corresponding period of a year previous, are as follows:

REVENUE ACCOUNT.
Six Months Ended April 30.

	1911.	1910.	Increase.
Gross earnings	$75,890.55*	$70,790.51*	$5,100.04
Expenses	44,053.64	40,488.83	3,564.81
Net earnings	$31,836.91	$30,301.68	$1,535.23
Interest on bonds	13,655.00	15,030.00	†1,375.00
Balance for dividends	$18,181.91	$15,271.68	$2,910.23

*Tolls not included.
†Decrease.

Number of telephones	6,992	6.600	392
Renewal reserve			$ 22,979.76
Bonds outstanding		$648,000.00	
Less owned by company		109,000.00	
			539,000.00
Capital stock authorized		$750,000.00	
Capital stock issued			373,250.00

$20,000 in Betterments at Paducah.

The Paducah Home Telephone Co., at Paducah, Ky., has let contracts for a large amount of betterments, and about $20,000 will be expended in bringing the plant up to the top-notch of efficiency. New cables are being put in, and additions to the switch-board are being installed. The work will be completed within the next thirty to sixty days. The public patronage of the Paducah Home is almost universal, as far as business houses are concerned, and only the grocers in that town are now using Bell telephones, the exorbitant rates of the East Tennessee (Bell) Telephone Co. there having resulted in a practical ostracism.

New York Suburban Rate Complaint Withdrawn.

The Public Service Commission has closed upon its records the complaint of residents of Kings Bridge, Spuyten Duyvil and Riverdale, against the New York Telephone Co. as to toll charges in the Kings Bridge and Marble exchange territory in New York. The commission received a petition signed by practically all of the complainants indicating their satisfaction with an arrangement which had been made with the company asking that the case be closed.

United States and Cuyahoga Meetings July 10.

On July 10, the long-postponed annual meetings of the United States Telephone Co., the long distance organization in the so-called Morgan group, and the Cuyahoga Telephone Co., of Cleveland, will be held in that city. The voting of the pooled stock in both companies has been prevented by court actions, so that no meetings have been held for two years. On July 1, the voting trust agreements expire and the stock will be free.

National Directors' Meeting Postponed.

The special meeting of the board of directors of the National Independent Telephone Association, which was scheduled for Tuesday, has been postponed until the regular meeting on the second Tuesday of July, which will be the 11th. On that date a quorum is assured and matters of first importance to the industry will be considered.

In "Ole Miss"

The Land of Magnolias—Cape Jessamine and Opportunity—A Productive Land

By J. C. Kelsey

Nearly fifty years ago, northern visitors undertook to see Mississippi.

They looked upon their maps and decided that the Tennessee River was the best route.

There was no Illinois Central in that country, and you could not reach Mississippi in a short day.

Pittsburg Landing, a nice little knoll on the Tennessee River, eighty feet high, attracted the attention of the northern visitors.

They landed and camped—and drilled—for they were soldiers.

At Corinth, General Sidney Johnston, a brilliant and gallant soldier, had 45,000 men, and not one of them looked with favor upon the visit.

Early one Sunday morning, the sleeping soldiers of General Grant were rudely awakened.

All about them were gray-coated soldiers.

Blood flowed freely as water can.

"Shiloh Meeting House" became famous in a few moments.

Sidney Johnston knew the ground and was slowly but surely driving the northern army into the Tennessee River, either to drown or surrender.

But there was one spot that could not be budged.

Four times was the flower of the Southern army repulsed.

Generals Wallace and Prentiss, too, stoutly resisted Sidney Johnston, and gave the names of "Hornet's Nest" and "Bloody Pond" to history.

Finally, General Ruggles gathered seventy cannon together and rained such a storm of death and destruction upon the Northern troops that they surrendered.

It was 5:30. But the delay had been too great. Precious hours were lost. General Johnston had been killed and darkness compelled the armies to rest.

During the night, General Buell, armed with fresh troops, and General Lew Wallace, returned to the field.

Why Lew Wallace acted so queerly, no one knows.

Anyway, the gray soldiers retreated before the blue to Corinth and the Northern visit began.

It is a pleasure to visit Mississippi today.

Northerners do not have to slip down the Tennessee River under arms.

They are welcome.

I visited the battlefield with a well-known telephone man, a gallant Southerner himself, with his Southern wife and Southern friend, and we all felt that the quarrel was past, and that Providence had had a hand in shaping the destiny of that bloody fight.

The war did temporarily carry ruin and devastation to Southern industry.

It changed the economic map.

I doubt today if any Southern planter could support 200 negro slaves and make even a living on fifteen-cent cotton.

In the typical old days, cotton netted fifty cents a pound.

Mississippi is a very productive state.

Talk about making a living on ten acres of apples or some other item—nothing can beat cotton.

With a rough acre, a mule and a plow, a man can leisurely raise a hundred-dollar bale of cotton.

You can raise 150 bushels of corn to the acre, and all vegetation grows in proportion.

Peaches cannot be excelled.

A few piles of brush, set afire at the psychological moment, will stave off the six hours of threatened frost.

You find people busy.

Nearly every man has more irons in the fire than you can imagine.

I met a busy man.

The war left his family destitute, his father dead, dependent upon him, a fourteen-year-old boy.

He took a contract with the Illinois Central to deliver a great quantity of ties.

It rained, and he could not deliver.

The railroad people went to his town and were amazed to find that fourteen-year-old contractor.

They advanced him money, and today he is a wealthy banker.

This is merely typical of the heroic recovery from that terrible devastation of Mississippi.

In a telephone sense, Mississippi's plight can be easily explained.

The Cumberland Telephone & Telegraph Co. is operating there.

Enough said!

This Bell licensee has run its race.

Rumor says that the fond Bell parent will take it over—and Cumberland dividends will cease.

The Cumberland personality reminds one of Mahomet.

Mahomet believed in the Koran and the sword.

Cumberland believes in Bell divinity and the sword.

Cumberland rates are higher than those of any other licensee Bell company—and they are more arbitrary.

Here you find the feeling that no one has any right to go into the telephone business unless licensed by Bell!

Cumberland has been a good customer for promoters. It has bought all of Mississippi south of Jackson.

Independent telephone development begins at Jackson, Meridian and Hattiesburg and moves northwest to Memphis and northeast to Corinth.

Independent telephone people have been getting a raw deal from the state commission.

The law says that all rates, under like conditions, must be equal.

But the commission says that Cumberland has a right to do as it pleases.

A very jocular commission!

As fast as the members fail of re-election, you will find them employed in the Bell lobby at Jackson.

It is nice to have a job after the people fail to show gratitude!

Cumberland connects farmers at $2 a year—one on a line or ten.

Other places pay $2 a month, where no competition exists.

But northern Mississippi is hostile territory.

It is the home of the officials of the Mississippi Independent Telephone Association, and they must be punished.

Commissions will not settle the telephone question. Nothing but the "survival of the fittest" will tell the story.

Universality is no match for the local issue.

Corinth is headquarters for the Sun Telephone Co. W. N. McAnge, Jr., is general manager.

He is well known in national circles, having been manager at Jackson, Tenn., and growing up in the business at Suffolk, Va.

This company is known as the Terry W. Allen property, having 1,500 telephones, and a comprehensive long-distance service.

It operates in southern Tennessee, with Stantonville as a center, and reaches down into Mississippi, along the Mobile & Ohio Railway, to Corinth and Tupelo.

This company has a telephone on the Shiloh battlefield. It is replete with war history.

And today it has a telephone war with the Cumberland.

A funny condition lies beneath this fight at Tupelo.

The company bought a Western Electric switchboard and 400 Bell telephones.

Whether they were promised immunity from Bell competition is not known, but today the Cumberland is putting up a nasty fight at Tupelo.

Regardless of the Western Electric board, the Bell is trying to strangle the Independents.

It is a lesson to telephone men who buy switchboards.

Shirley Lewis is manager at Tupelo. He is just the man to handle the defense to the Cumberland fight.

J. C. McCarthy has a fine local and rural system at Guntown.

Mr. McCarthy believes in conventions, and is Independent as any monarch.

His home, garage and surroundings make you wonder why you live in a large city.

An Independent telephone exchange of from 300 to 500 subscribers will give a live man more opportunity for profit on less investment than any other industry.

S. J. Whyte operates 800 telephones in Kosciusko and vicinity. Sidney Whyte is the original Mississippi boomer. He believes in his country. And he showed me countless opportunities. Mr. Whyte lives in a beautiful home among magnolia blossoms and Cape jessamines.

He has many irons in the fire.

He owns a great peach orchard. He wants some enterprising man to come to Kosciusko and start a steam laundry. He will take a half-interest.

If any one thinks Mississippians are lazy, he will get over the idea after a few hours with S. J. Whyte.

Yazoo City has an excellent system of 750 telephones. M. P. Derden is manager, and if you want to see him you have to go out on the line to find him. He is a busy man.

Yazoo City had a terrible fire. Today it is a beautifully rebuilt city. It has fine schools.

Situated on a hill-side, it offers a most healthful location.

To the east, the great Mississippi delta begins.

Here grows the finest cotton in the world.

Very shortly we may expect long-distance connection with the Mississippi Home Telephone Co. at Jackson.

Jackson is headquarters for the Mississippi Home.

This company operates 3,000 telephones in Jackson, Meridian and Hattiesburg.

These three cities are connected by heavy copper toll lines.

Meridian is the center of a magnificent farm telephone development.

This advantage at this point more than offsets the alleged universal advantage of the Cumberland.

Dr. J. E. Givhan is president of the state association. He took a prominent part in our last national convention. He lives on a plantation of 2,500 acres, nine miles from Pontotoc and nineteen miles from Tupelo.

In order to keep busy, in addition to running a productive farm of this size, he practices medicine. He willingly drives to the relief of a large neighborhood at any time of night.

He is a great physician, capable of a large city practice, but he prefers to minister to the neighbors of his nativity.

Not being busy enough still, he has gone extensively into the telephone business. In fact, he has put $75,000 of his own money into it—because at one time he could not get telephone service from the Cumberland.

Dr. Givhan operates local exchanges and has extensive toll lines.

Today he is being attacked by the Cumberland, and a cowardly commission will not give him his legal right to protection. He is not suffering, but he should not be exposed to such devilish tactics.

In fact, the Cumberland Telephone Co. dares Independents to try to assert their rights.

Commissions are grand things—for trusts!

Marcus Shannon operates in Pontotoc and vicinity. He attended the national convention and takes active interest in telephone matters.

James Shannon operates at New Albany. He is secretary of the state association.

I did not see the Shannon brothers, nor Mr. Toole, at Oxford, as I contracted a severe illness and hurried back to Chicago before seeing them.

The Memphis Telephone Co. has wide influence in Mississippi, too.

There is a great opportunity for Independents in Mississippi. The Postal Telegraph Co. can find the psychological moment there now.

Mississippi is our future opportunity.

While other localities have discounted their future from twenty to fifty years, this state offers a full, free and unencumbered present.

MORAL—Commissions do not have a life job!

Telephone Question Arouses Utah Development League—Sentiment Strong Against Bell Company.

The Utah Development League, composed of almost every commercial body in the state, will take up the telephone rate question, and for that purpose a meeting of the board of governors of the league was called to be held at the Commercial Club in Salt Lake this week.

It is stated in the call issued by President Frank M. Driggs, of Ogden, that members of the league have urgently requested the meeting, and it is understood that the raise in telephone rates throughout the state, will be opposed by the league.

While the first move of the Bell company to raise the rates appeared at Eureka and Park City, the concern is planning to announce other increases, and the Utah Development League, in line with its policy to promote the commercial and economic welfare of the state, will take a hand in the matter.

At Eureka the squad of solicitors turned loose by the Bell company is meeting with little success. The telephone users of Eureka wish it distinctly understood by the people of the state that not only has the opposition to the raising of the rates not subsided, but that the fight has merely commenced.

There are at present about five hundred users of telephones in that district and out of this number the solicitors have only been able to sign about fifty, none of this number being business men. It appears from the information pouring in from every corner of the city and surrounding districts, that the signers have been induced to sign under a misapprehension and that in most cases they have later notified the company to cancel their contracts and to take out their telephones if there is any raise in rates.

H. M. Fennemore, division commercial superintendent, met with the committee at Eureka and endeavored in vain to convince them that the rates the company was trying to enforce were just and equitable. The committee would not budge from the position taken by the mass meeting held a short time ago and later took the matter up with the officials of the Salt Lake Commercial Club and the Utah Development League. Park City and other places have been called up and their cooperation solicited and the fight promises to be a lively one.

Kentucky Independents Perfecting Plans for Concerted Action to Strengthen Their Situation.

Plans for unifying the Independent telephone interests of Kentucky which were discussed at the last annual meeting of the organization in Louisville last winter, are still under consideration, but a slightly different method will be decided upon for reaching the same general result.

It was at first proposed that the association should organize a company holding for the various local plants in the state, but after discussion, it was decided that there were certain objectionable features in this plan, and it was laid on the shelf.

The idea which is now being worked out is to form an interparty agreement, the various companies subscribing to the contract relative to the exchange of service and the handling of common problems on a common basis. By carrying this idea out the Independents will be able to put up a solid front. It is believed that final details regarding this agreement will be perfected shortly.

Proposed Changes in Interstate Commerce Law.

Senator Kenyon has introduced in the United States Senate a bill proposing important changes in the interstate commerce laws. One would give the commission power to fix a minimum rate. As the commission now has power to fix a maximum rate this would practically mean giving it full power of rate making. Another proposed change strikes out the provision that enables railroads to exchange services with telephone, telegraph or cable companies.

New York Paper Estimates Keystone's Earnings for Fiscal Year at 13¼ per cent on Preferred Stock.

With but one month yet to be reported, it is possible to make a pretty accurate estimate of the actual earnings that will be shown by the Keystone Telephone Co., (Philadelphia), during the 12 months to end June 30 next, says *Financial America*, (New York). We estimate that the company will earn about 13¼ per cent on its outstanding preferred stock, as compared with about 12 per cent in the year previous.

Gross earnings will probably show an increase of nearly $31,000; the net $15,000 and surplus available for dividends a trifle less than $25,000.

Following are the estimated figures for the 12 months to end June 30:

	1911 (est.)	1910 (act)	Changes.	
Gross earns.	$1,157,000	$1,126,030	Inc.	$30,970
Op. exp. & tax.	574,000	558,078	Inc.	15,922
Net earns.	$583,000	567,952	Inc.	$15,048
Charges	325,800	335,543	Dec.	9,743
Surplus	$257,200	$232,409	Inc.	$24,791
Eq. on pfd. stk.	13.27%	11.99%	Inc.	1.28%

Earnings of the Keystone company have shown gradual improvement for some years past, although the gains in any one fiscal period have not been as impressive perhaps as those recorded by a number of other companies carrying on the same line of business. In the 1910 fiscal period the gross totalled about $300,000 more than in 1906; the net about $200,000 more, and surplus about $180,000.

What has been accomplished by the property in the matter of earnings during the past five years is indicated in the appended table:

	Gr. earns.	Net earns.	Int. Chgs.	Surplus.
1910	$1,126,030	$567,952	$302,775	*$265,177
1909	1,073,462	542,453	312,408	130,145
1908	1,051,072	511,949	313,113	98,836
1907	995,752	473,716	265,630	107,740
1906	830,049	371,094	214,233	77,218

*Before allowance for depreciation.

The number of telephones that the company now has in operation in Philadelphia represents a large increase over a few years ago, the present total being considerably more than **30,000, which comparies with 27,000** in 1907, 21,000 in 1906 and 17,000 in 1905. Should the company maintain this rate of increase, it is obvious that considerably larger earnings may be expected in the future.

Postpone Cut in New York Rates.

Instead of going into effect on August 1, the reduction in telephone charges between Manhattan and other boroughs, ordered by the New York Public Service Commission, will not become effective until December 1. This was announced following a hearing before the commission, when the New York Telephone Co. asked for an extension of time in order to prepare fo rthe increase in traffic expected on account of the reduced rates.

Announcement was made by Union N. Bethel, president, that the company would voluntarily reduce the rates between Manhattan and the northern part of Staten Island, Jersey City, Hoboken and Bayonne. The commission is holding under advisement the company's request that East New York, Flatbush and Bay Ridge be eliminated from the five-cent order and be kept on a ten-cent basis.

Kinloch Independent Regular Dividend.

The directors of the Kinloch Long Distance (Independent) Telephone Co., of St. Louis, have declared the regular quarterly dividend of 1½ per cent, payable August 15.

Proceedings of Railway Telegraph Convention at Boston

Synopsis of Four-Day Annual Meeting of Association of Railway Telegraph Superintendents, Papers, Discussions, Etc.—Convention Largest and Most Successful Ever Held—Many New Members Elected—Exhibits Complete and Varied—List of Those Attending

The thirtieth annual convention of the Association of Railway Telegraph Superintendents opened at the Hotel Brunswick, Boston, Mass., on the afternoon of Monday, June 26, with a large and enthusiastic attendance. A total registration of 115 delegates and guests, including a liberal representation of ladies, assembled in the convention room of the hotel at 2 p. m., and the meeting was called to order by J. B. Sheldon, first vice-president, superintendent of telegraph, Union Pacific Railroad, Omaha, Neb., in the absence of the president, I. T. Dyer.

A most successful convention was presaged from the outset, and the enthusiasm was heightened by a most energetic and friendly speech of welcome by John F. Fitzgerald, Mayor of Boston, capped by a telling climax in which the chief executive of the city was obliged to sing a stanza of "Sweet Adeline," accompanied by the entire convention in the chorus. G. A. Cellar, superintendent of telegraph, Pennsylvania Lines West, Pittsburgh, responded in a happy vein.

In calling the meeting to order Mr. Sheldon paid a high tribute to the ability of Mr. Dyer, who is unable to leave Los Angeles on account of illness.

The convention badges this year carry attractive portraits on celluloid of Charles Minot, the first railroad officer to use the telegraph in the movement of trains. The reverse side of the disc attached to each ribbon carried a view of the proposed monument which the association plans to erect in memory of this pioneer official at Turner, N. Y., the point where the first telegraph train order was sent, in 1851.

A pleasant feature of the opening session was the introduction, by E. P. Griffith, superintendent of telegraph, Erie Railroad, Jersey City, N. J., of Mrs. George S. Minot, of Brookline, Mass., a niece of the celebrated originator of the electric train order.

Mrs. Minot gracefully expressed her pleasure in attending the convention.

S. A. D. Forristall, superintendent of telegraph, Boston & Maine Railroad, Boston, chairman of the entertainment committee, then outlined the program of pleasure awaiting the delegates, the interests of the ladies having been particularly well cared for.

Many New Members Elected.

Routine business was then taken up, and the minutes of the preceeding convention at Los Angeles approved as printed. Secretary P. W. Drew, superintendent of telegraph, Minneapolis, St. Paul & Sault Ste. Marie Railroad, Chicago, then read telegrams of greetings from Mr. Dyer, and E. A. Chenery, St. Louis; E. M. McClintock, Denver; C. S. Rhoads, Indianapolis, Ind., and George Boyce, St. Paul. The following new active members were then elected:

H. A. Shepard, assistant superintendent of telegraph, New York, New Haven & Hartford Railroad, New Haven, Conn.; H. A. Vaughan, assistant superintendent, Chicago, Burlington & Quincy Railroad, Lincoln, Neb.; G. L. Candler, superintendent of transmission, Central Railroad of Georgia, Savannah, Ga.; G. O. Perkins, superintendent of telegraph, Chicago Great Western Railroad, Chicago; F. E. Camp, inspector of telegraphs, Canadian Pacific Railway, Revelstoke, B. C.; E. A. Speer, inspector of construction, Canadian Pacific Railway, Toronto, Ont.; E. M. Payne, inspector of telegraphs, Canadian Pacific Railway, Winnipeg, Man.; J. E. Golden, superintendent of telegraph, Tide Water Pipe Line Company, Bradford, Pa.; C. W. Stockdale, general foreman, Illinois Central Railroad, Chicago; and C. W. Bradley, acting superintendent of telegraph, Chesapeake & Ohio Railway, Richmond, Va.

The following associate members were also elected: E. E. Hudson, sales manager Edison Storage Battery Co., Orange, N. J.; Albert G. Francis, railroad agent, Chicago Telephone Co., Chicago; E. M. Fisher, commercial superintendent, Cumberland Telephone & Telegraph Co., Nashville, Tenn.; R. B. Crane, general sales agent, Rock Island Battery Co., Cincinnati, Ohio; Arthur D. Walters, special agent New York Telephone Co., New York; E. V. Adams, railroad sales, Western Electric Co., Chicago; G. K. Heyer, Western Electric, New York; C. T. Wilkinson, General Electric Co., Schnectady, N. Y.; D. W. Dean, special agent American Telephone & Telegraph Co., St. Louis, Mo.; A. F. Eyerman, Bell Telephone Co., St. Louis, Mo.; W. L. Cook, sales engineer, North Shore Electric Co., Chicago; J. H. Finley, and E. L. Howk, Western Electric Co., Chicago; Vernon Durbin, Holtzer-Cabot Electric Co., Brookline, Mass.; W. O. Neville, special agent, Missouri & Kansas Telephone Co., Kansas City, Mo.; Henry Homer, special agent, American Telephone & Telegraph Co., Philadelphia; E. Whitmore, manager Manhattan Electric Supply Co., New York; A. D. Smith, Railway Department, Northern Electric Manufacturing Co., Montreal; J. F. O'Donnell, manager Western Telephone Co., Joplin, Mo.; H. G. Thompson, manager Edison Storage Battery Co., Orange, N. J.; L. H. Merrill, special agent, Minneapolis Telephone Co., Minneapolis; and S. G. Brown, electrical engineer, Western Electric Co., New York.

Constitutional Amendments.

The report of the membership committee was read by Secretary Drew, who pointed out that there are now 102 active and 67 associate members in good standing, making a total of 169.

The auditing committee, consisting of A. B. Taylor, superintendent of telegraph, New York Central & Hudson River Railroad, New York, and L. A. Lee, superintendent of telegraph, Pittsburg & Lake Erie Railroad, Pittsburg, Pa.; reported that the treasurer's exhibit was correct, there being a balance of $302 on hand. The total receipts during the past year were $1,607.50, and the expenses were $1,305. The reports of the committee and of the treasurer were unanimously accepted.

The committee on constitutional amendments, through Secretary Drew, reported in favor of the following changes: first, amending Section 5 of Article 2, to provide for the securing of a quorum under certain conditions; second, amending Section 6 of the foregoing article, to provide that in cases of membership committee meetings the presiding officer may appoint a quorum; third, to amend Section 51 of Article 6, regarding the changing of the time and place of the annual meeting, with due notice, and fourth, concerning the submission of subjects for approval, in some cases, to the American Railway Association.

Reading of Papers.

The first paper presented was by W. J. Camp, electrical engineer, Canadian Pacific Railway, Montreal; on "Hints." This was as follows:

"Hints."

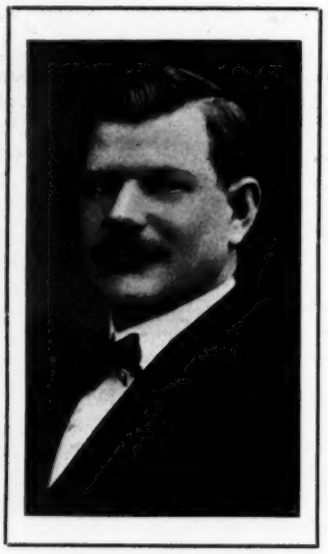
By W. J. Camp.

During the period from 1887 to about 1898, the Canadian Pacific Railway Co. used white porcelain insulators on a portion of the long through wires. These were of German or British manufacture. An elaborate series of tests proved their

Members of Association of Railway Telegraph Superintendents, Their Wives, Friends and Visitors—Annual Convention Held at Boston This Week.

great superiority over glass from a mechanical standpoint, the average blow necessary to break a porcelain being three times that required to break the glass insulator. It was also discovered that usually a porcelain insulator was only partially destroyed when hit by a stone and that the wire was not set free and remained fastened to each pole, but the glass insulator was so badly shattered that the wire would be freed and this frequently resulted in a cross with other wires which remained attached to the pole. This advantage was offset to some extent by the fact that, on account of the porcelain insulator being white, it offered a much better mark and was the one aimed at. The price of the porcelain insulator was increased until it reached about nine cents each laid down in Montreal, and its use by us, therefore, abandoned for some years. The glass insulator with which we were supplied then depreciated in quality, apparently on account of improper annealing, and appeals or complaints to the manufacturers resulted in no improvement; and, as the cost of the porcelain insulator was again very largely reduced, we have purchased nothing but white porcelain for the past three years.

Last year we procured porcelain insulators from Canada, the United States and Germany. One make turned out to have defective insulation properties, and we had a series of tests made comparing the three manufactures and glass. All of the in-



S. L. Van Akin, Jr.

sulators were of the same pattern and dimensions. One dozen insulators of each make, selected at random, were placed on pins in the open air, and frequent readings taken of insulation, humidity, temperature and barometer. During the tests the weather was of nearly every description, from dry cold to sleet, wet snow and rain. These tests proved that in every respect the German and United States insulators had from 5 to 10 times the insulating qualities of the Canadian and glass insulators, the two former giving practically the same results with a slight difference in favor of the German, and the Canadian porcelain and glass almost on a par. Tests of wires after erection show the same differences.

Transpositions.

The first telephone dispatching circuit we installed was transposed every half mile. The selectors were in series, alternating on each wire. The circuit was found to be slightly noisy, and we then transposed it every quarter mile, which cut down the noise for a time, but we found it almost impossible to keep the circuit free from noise while working the selectors in series; and, as we found that most of the failures were due to the contact points of the relay, we changed from series to main line bridging selector without relay. Since then the circuit has been practically free from noise, and on all subsequent circuits installed the same method has been followed. We now transpose all our despatching circuits every quarter mile, except where two circuits run parallel for a portion of the way. Over this section one circuit is transposed every quarter mile, and the other every half mile. Looking forward to the time when the telephone will be used for other work, we arrange transpositions on our copper telegraph wires (and sometimes on the iron), every half mile for the first pair, and for the second pair, every mile, or transposed at the quarter, three-quarter, and mile, skipping the half mile.

Our method of transposing when the two wires are on the same arm is by the use of a curved iron bracket under the arm, and so placed that the wire it carries comes directly under the wooden pin carrying the other wire over the top of the arm. This bracket is specially made for us, but the arrangement is similar to that of the Harvard Co. Where the two wires are on separate arms we place an extra pin on the upper arm half way between two of the regular pins, and skip the pin on the lower arm. By these methods we have largely decreased the liability of crosses in case of broken insulators.

Lightning Protection.

The problem of adequate lightning protection is a most serious one with the Canadian Pacific Railway on the portion of the line between Lake Superior and the Rocky Mountains on account of the excessive severity of the lightning in this district. I might say that we are "between the devil and the deep blue sea." If we use sufficient arresters to take care of the frightful discharges, we most likely will kill the telephone circuit by having so many "traps for bugs." We have been using at the stations into which the line is looped, four Argus arresters, without fuses, on the four ends of the wires, and two Argus arresters with fuses on the bridge wires to the telephones and selector.

At stations where the circuit is only legged in we have two Argus arresters with fuses. At the despatcher's office, besides the Argus arresters we equipped the first three poles from the office with O'Connell pole arresters. In some sections this protection seems to be adequate, the circuit being worked right through storms, but in the district above mentioned it does not appear to be sufficient, my reports showing that at times the telephone has to be abandoned for an hour or more on account of lightning. There have been some interruptions on account of the pole arresters, and this year we are trying out the branch office and pole arresters to the same extent as the former equipment. Some of our superintendents have asked for pole arresters at every station, but I am afraid that if such were installed they would prove to be an endless source of trouble and annoyance, and that after every severe lightning storm, the circuit would be out of commission until a lineman could be sent over it. I hope some of the members present can give us good reliable data on these points.

Telephone Inspectors.

On the Canadian Pacific System we have one telephone inspector for 250 to 300 miles of circuit with his headquarters approximately in the center. Up to the present we have not found it necessary to provide the inspectors with motor cars, but, personally, I believe that every inspector should have a light motor car, particularly in sections where there are comparatively few trains. Our inspectors are supposed to be continually on the move. I consider that an inspector's duty is not so much to *remove* interruptions, as to *prevent* their occurring.

Train Telephone Sets.

On every section where we install telephone train despatching circuits, we equip every train with a telephone outfit, without selectors. The wrecking cars are provided with howler

receivers, by means of which the despatcher can call them in on the line if necessary. The connecting pole we use is the invention of J. F. Richardson, superintendent of telegraph of the Eastern division of the Canadian Pacific Railway. It is so arranged that connection can be made with any two wires on the line, no matter whether they are on the same arm or not. We do not install any equipment at outlying sidings, as the train equipment answers every purpose should a train become stalled anywhere. On account of the severity of our climate during a portion of the year, no one could use a telephone at a pole box, and each outfit contains sufficient flexible twin wire to lead the circuit into the baggage car or conductor's caboose.

DISCUSSION.

Mr. Griffiths cited tests made many years ago on the New Haven lines in foggy regions, where it was found that after rains porcelain insulators maintained their insulation longer than glass, although the latter type recovered in half the time of the former. Mr. Camp said that later Canadian insulators do not give as good results as earlier productions.

J. C. Johnson, superintendent of telegraph, Pennsylvania Railroad, Philadelphia, stated that his company was obliged to throw away smoke coated insulators, cleaning being too costly. Cobwebs give much trouble in foggy weather at certain places on the lines.

Mr. Camp cited the successful use of a single-petticoated insulator except in the damper climate of the maritime provinces. The petticoat is built thick, giving a high mechanical strength. The insulators of glass cost the Canadian Pacific $2.90 per hundred, and the tests made in the paper were performed at 200 volts. Persistent failures of insulation on a line in Cape Breton had been traced to the presence of cocoons in the insulators. Smoke accumulations are successfully washed out from porcelain insulators at Montreal. The breakage of porcelain insulators on the Canadian Pacific averages less than 1 per cent.

J. F. Caskey, superintendent of telegraph, Lehigh Valley Railroad, Bethlehem, Pa., stated that he had just ordered 40,000 "Knowles" double-petticoated insulators which are claimed by the makers to have less moisture absorptive powers than former products.

V. T. Kissinger, superintendent of telegraph, Chicago, Burlington & Quincy Railroad, Chicago, called attention to the differences found in grades of porcelain, commenting on the increased price compared with glass. Mr. Camp said that the present prices in Montreal are 4¼ cents for porcelain, and 2.9 cents for glass.

Mr. Kissinger stated that his company had practically no wooden pins in service, and that it uses porcelain and glass without regard to the pins. Mr. Cellar, Pennsylvania Railroad, urged a more rigid inspection of porcelain insulators compared with glass, and pointed out that the old patterns must give way to newer designs. Special work is being done at present upon new designs of insulators, which will shortly make their appearance in service.

A short discussion also took place regarding transpositions of railroad telephone lines. Plans prepared by Mr. Chetwood provided for a complete cycle of wiring changes in an 8-mile run, with individual transpositions from ¼ to 1 mile apart. Mr. Johnson, Pennsylvania Railroad, mentioned the installation of a scientific plan of transpositions on his system, in which Morse circuits and high tension lines are both taken into account. J. H. Ditch, chief telegraph inspector, Pennsylvania Railroad, Altoona, said that the line is laid out for the ultimate number of wires, the transpositions being placed according to the lettering on the poles. All wires are transposed, including both telephone and telegraph. The telegraph wires are paired up for use as telephone circuits when desired, which accounts for their transposition. Mr. Kissinger, Burlington Lines, said that his company made up a transposition of its own, the total length of the cycle being not over 2 miles, and the arrangement good even for stretches 600 ft. long. Mr. Caskey transposes train lines every ¼ miles and at every other pole where high tension circuits are encountered. Mr. Johnson, Pennsylvania Railroad, emphasized the importance of further development in connection with printing machines for telegraphic service.

The session closed with a brief discussion of lightning protection, in which the following members participated: Messrs. Johnson, Pennsylvania Railroad; Gooch, Richmond, Fredericksburg & Potomac Railroad; Caskey, Lehigh Valley Railroad; Van Akin, New York Central Lines; Kissinger, Burlington Lines; Griffith, Erie Railroad; Wilbur, Illinois Central Railroad; and Camp, Canadian Pacific Railroad. Mr. Gooch commended the O'Connell arrester, being supported by Mr. Kissinger. Mr. Caskey had had to replace carbon block protectors by the "Argus, type A" arrester, but is looking for still more effective apparatus for the more exposed portions of the company's lines. Messrs. Van Akin and Griffith also favored the "Argus" arrester. Several members also spoke of the good results being obtained from the installation of telephone sets in special booths, for the use of trainmen, including a provision for calling the crew back to the instrument from dispatching headquarters. The plan of equipping trains with portable sets and pole connectors was also generally favored.

TUESDAY MORNING SESSION.

The second session was called to order shortly after 10 o'clock Tuesday morning by Vice-President Sandford. Belvidere Brooks, general manager of the Western Union Telegraph Co., New York, occupied a seat on the platform, and expressed his pleasure at being present. A. G. Saylor, general superintendent of the Western Union Co., said that there was no service in the world which had produced as many able and intelligent men as the telegraph industry, and extended his heartiest greetings. R. E. Chetwood, engineer of construction of the Western Union Telegraph Co. was also called upon and wished the convention the heartiest success. C. Selden, Baltimore & Ohio Railroad, felicitated the association on the presence of its distinguished guests, and E. P. Griffith, Erie Railroad, added his congratulations.

A paper, "Co-operation Between Railroad People and Commercial Companies" was then read by the author, Mr. W. P. Cline, superintendent of telegraph, Atlantic Coast Line Railway. The paper follows:

Co-Operation Between Railroad People and Commercial Companies.

By W. P. Cline,

Every superintendent of telegraph believes, and with reason, that upon the efficiency of the telegraph depends, in a large measure, the success of all other departments of a railroad. He may not find many enthusiastic endorsers of this flattering view until, perchance, it fails, somewhere, in the customary performance of its functions; then, the very complaints that pour in upon him, of what it has failed to do, attest its value. His ambition is, therefore, to maintain a service upon which all users may confidently rely.

It is the purpose of this paper to refer to a condition that militates disastrously against his achievement of this object.

That condition is the lack of cordial co-operation between local officials and employes of railroads and those of contracting commercial telegraph companies. Wherever such a state of affairs exists, the result must be confusion; and although it may be confined principally to one road, it reflects unfavorably upon others.

The subject is believed to be of sufficient general interest to warrant a brief discussion by this body.

In a certain commercial office, the wire chief was found one day, figuratively, tearing his hair. He was in a most un-

happy frame of mind. The cause of his perturbation was a peppery communication from his superintendent, forwarding an equally spicy complaint of a railroad official, in a distant city, regarding the condition of his railroad wires which were said to be in trouble. The complaint, in characteristic terms, stated that they were always in trouble and that no attention to them could ever be secured. The contract called for wires, and wires must be furnished forthwith. The railroad official was, evidently, angry all the way through and terribly in earnest.

This wire chief is, indeed, very competent, very vigilant; and, although this statement may be questioned, has every disposition to give the railroads a square deal; but his reply was also characteristic, and he proved by his log that the wires had never been in trouble; that if they had been, they had come clear before the lineman got there. Anyway, nobody had ever called his attention to them.

High Maintenance Efficiency Required.

This story is not altogether a fancy. The situation as described may not be appreciated by those of us who, having the requisite organization, construct and maintain our own telegraph lines and are, therefore, able to point with pride to a perfect equipment and a perfect service; but to those who must look to a contracting commercial company for the maintenance of railroad wires, it is very real and we know that there is, often, at least a shadow of justification of such a complaint from a railroad source and also a shadow of truth in the explanation attributed to the wire chief.

As a matter of right, a railroad company expects the wires, batteries and apparatus assigned to its use to be maintained at all times in such condition as to be efficient for railroad service.

As a matter of fact, it is too often true that a very low degree of efficiency is considered good enough for a railroad circuit.

It sometimes appears that the commercial company's wire chiefs are satisfied so long as a railroad wire "works," although it may be in such condition that its use in commercial service would be considered impracticable; and if some of us were to find out that our railroad wires were being tested, even occasionally, for insulation and conductivity, or that a lineman or other inspector had visited our railroad offices for the purpose of preventing trouble by discovering and remedying defects before their presence could be made known in the usual way —well, we would be mildly surprised, to say the least.

If this be true, it may be asked: "why talk about co-operation when, apparently, the commercial company is lax in the performance of its contract duty?"

The answer is that without a certain form of assistance from the railroad people, the performance of the commercial company's duty is made so difficult that its human representative, the wire chief, becomes discouraged and, therefore, not unnaturally, indifferent if not actually antagonistic to the railroad's interests.

Railway Officals Waking Up.

In a typical case like the one described, it was the custom to rely wholly upon the commercial company to investigate every wire trouble. It was "up to them" because the contract said so. The inevitable result was inefficient telegraph service, with its train of annoyances.

Conditions improved when the custom was changed from absolute reliance upon to at least a partial co-operation with the commercial company. Among the more important details that brought about the improvement, was a change in the attitude of railroad officials towards office troubles. It is safe to say that the major proportion of interruptions to railroad telegraph circuits is due to loose connections, open keys or grounds in offices. These are avoidable. The chief dispatcher is the man who can correct these defects and handle them with offenders in a manner that will reduce their number to a minimum, if not cause them to become unknown. Chief dispatchers were, therefore, directed not to call upon the commercial company to investigate open and grounded wires until they had satisfied themselves that the trouble was not in some office. They were directed, also, to see that a "wire" signal when used on a railroad wire by the commercial company's wire chief, was duly respected and was not to be the signal for a command from a dispatcher or operator to "get out," with, perhaps, a few choice epithets thrown in by way of emphasis.

They were further directed, in view of delays charged against the commercial company and as an aid to their investigation, that their reports to the wire chiefs must be in writing, their file copy showing the time transmitted.

Roadmasters, also, were reminded that the telegraph line is a very important part of the railroad's equipment and were directed to have their forces give it reasonable attention and make reports of defects that they might be unable to repair.

Pursuance of the policy thus briefly outlined has shown most gratifying results.

The commercial companies, we may be sure, honestly intend that railroad wires and equipment shall be maintained in accordance with the high standards of their own service.

We believe, however, that our success in having these standards applied and, consequently the quality of our telegraph service, will depend very largely upon the extent to which we shall be able to bring our own people to realize the value of and the necessity for free co-operation with our commercial friends.

Discussion.

Mr. Saylor emphasized the importance of good wire service and reviewed some of his early railroad experiences, pointing out the dependence of adequate transportation upon the telegraph system. He touched upon the importance of maintaining equipment in first-class condition, and commended the present system of specialized maintenance as practised in the divisional organization.

Mr. Selden said that he was considering bringing the office wires into a "Test-O" cut-out before connecting with the fuse equipment. He felt that the use of a plug on the outside of the fuses would tend toward fewer interruptions of service.

Mr. Griffith emphasized the rapidity with which telegraph troubles are cleared in modern railroad practice. He suggested the possible usefulness of a shunt lever connection on the line side of the fuse, giving a line through the office without running through the fuses and switchboard.

Mr. Chetwood said that the present 15-amp. fuse with a carbon block will eventually give way on the outer end of cables to a fuse protection, the lightning protection all being handled in the office. An arrangement of switching is now being planned by which through wires running through offices closed for the night can be switched out of the office. He advised putting the less sensitive protection at the outer ends of the lines, with the non-sensitive protection nearer the instruments.

Mr. Camp said that on the Canadian Pacific much difficulty arises from the simultaneous operation of railroad and commercial service. He had tried using a switch on the line side of the circuit to disconnect the office, but the result was that the patches could not be well maintained.

Mr. Chetwood said that the American Telephone & Telegraph Co. has been using porcelain insulators on certain long-haul circuits. Tests show that when these are first installed a resistance twelve times that of glass is found. The use of these is justified on No. 8 gauge loaded phantomed circuits, but not on unloaded No. 8 gauge or No. 12 gauge circuits. Indications are that the double-petticoated porcelain insulator is about four times as good as glass, but more tests are necessary to establish final conclusions.

Signs of ageing of porcelain are apparent, so far to 9 or 10 times the insulation value of glass. A new design of double petticoated glass insulator has been designed and tests indicate about 75 per cent. better insulation than former types, besides their being less fragile than the older types. About 50,000 such insulators are being tried. At this time a porcelain insulator costing from five to eight cents does not appear generally justified for telegraph service, except where exceptionally long-haul service is encountered, or where malicious breakage is frequent. A porcelain insulator to be of any value must be absolutely non-absorbent.

W. W. Ryder, New York Central Lines, Chicago, suggested that porcelain may not be of the greatest value in railroad yards, but Mr. Chetwood was inclined to take an opposite view.

Mr. Saylor cited the difficulties of working iron wires in rainy weather regardless of the type of insulator types.

Mr. Selden queried the benefits of a possible return to wooden pins. Mr. Chetwood said that steel pins would always be used by the Western Union interests on account of the design of cross arms. A wooden pin would call for a larger and a creosoted arm, with preservative applied to the pin. There is better resistance with steel pin and wooden arm construction. The creosote makes trouble in many cases from the insulation point of view.

Mr. Camp cited the exclusive use of wooden pins on the Canadian Pacific. For five years the birch pin boiled in oil has been used, costing half the expense of locust. Locust pins cannot be readily obtained, and the customs cause such delay that such material cannot be ordered from the United States in time for use in Canada.

Mr. J. L. McQuarrie, assistant chief engineer, Western Electric Co., New York, then read his paper, "Some Observations on Telephone Transmission."

Space forbids the presentation of the paper this week. An abstract will appear in a later issue.

TUESDAY AFTERNOON SESSION, JUNE 27.

The meeting was called to order at 2:20 p. m., opening with a discussion of Mr. McQuarrie's paper. Wm. Maver, Jr., characterized the paper as historical, practical and able. He criticised the terminology of the paper briefly. Messrs. Ghegan and Selden also spoke briefly.

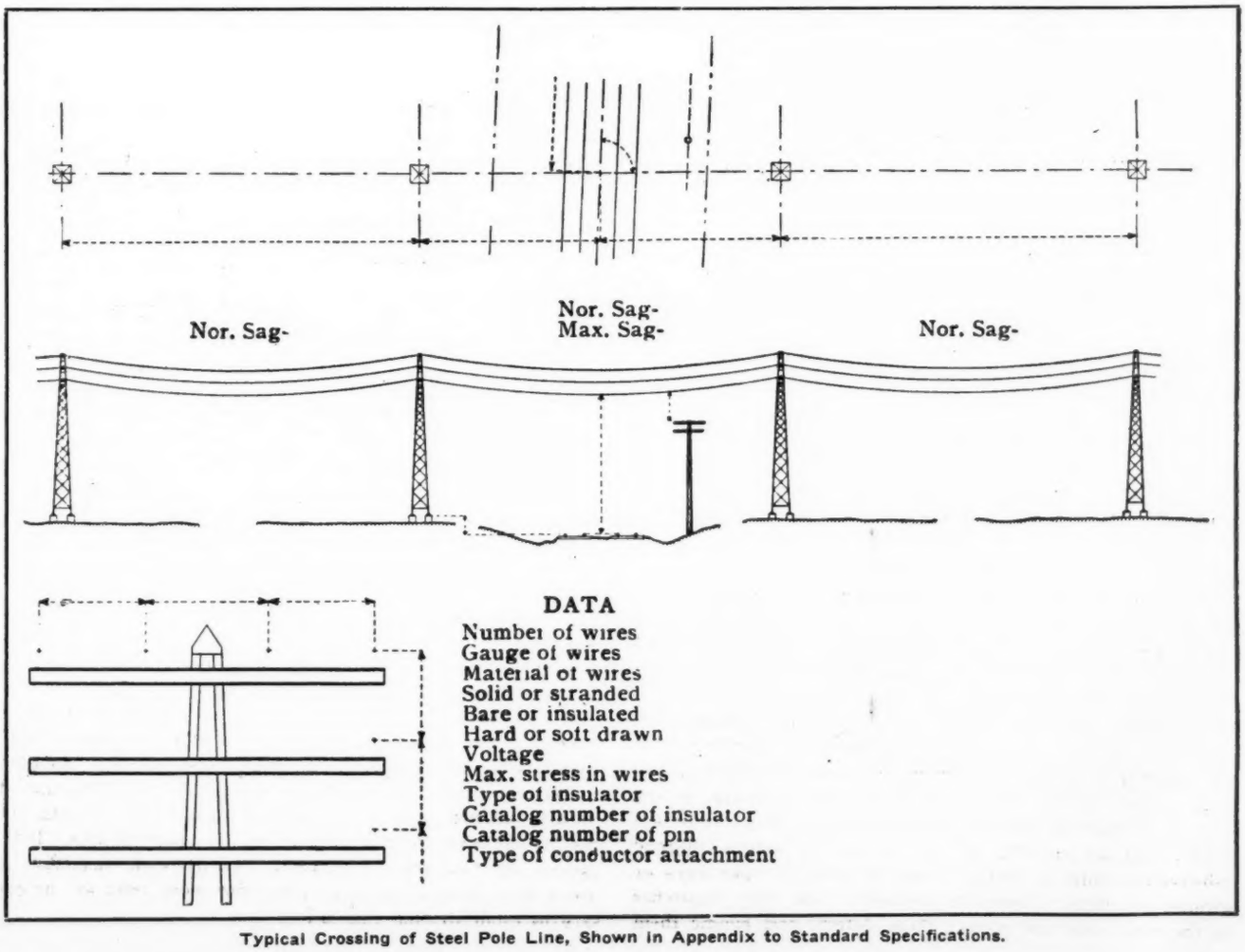
G. A. Cellar, Pennsylvania Railroad, abstracted the report of the committee on high tension wire crossings, which was unanimously accepted by the convention. The committee was continued and empowered to prepare specifications bearing upon low tension crossings. A unanimous vote of thanks was tendered the committee for its work.

Ralph W. Pope's paper, "Railway Efficiency," was then read by W. W. Ryder, Chicago. Vice-president Sheldon expressed his high appreciation of the paper, which was not discussed.

Railway Efficiency.

By Ralph W. Pope.

The commercial activity of a country is based on production and distribution. The main factor in distribution is transportation, and this is the service for which the railways are mainly responsible. To carry on this work with safety, convenience and celerity, the telegraph department has become practically indispensable. If, therefore, the inefficiency of the railway management is represented by an expenditure of $300,000,000 annually, the telegraph departments of the various companies would naturally be called upon to assume their share in the geenral increase in efficiency.



Typical Crossing of Steel Pole Line, Shown in Appendix to Standard Specifications.

In considering the question of efficiency the peculiar character of the railway problem confronts us. Scientific management has been so prominently exploited, that it has been hailed as the forerunner of universal prosperity. The examples cited usually indicate that by means of scientific methods a tremendous gain has been possible in the output of each human unit engaged in coal shoveling, pig iron shifting and bricklaying. It is obvious that similar gains in efficiency are possible and have been made in the past, in various branches of manufacturing.

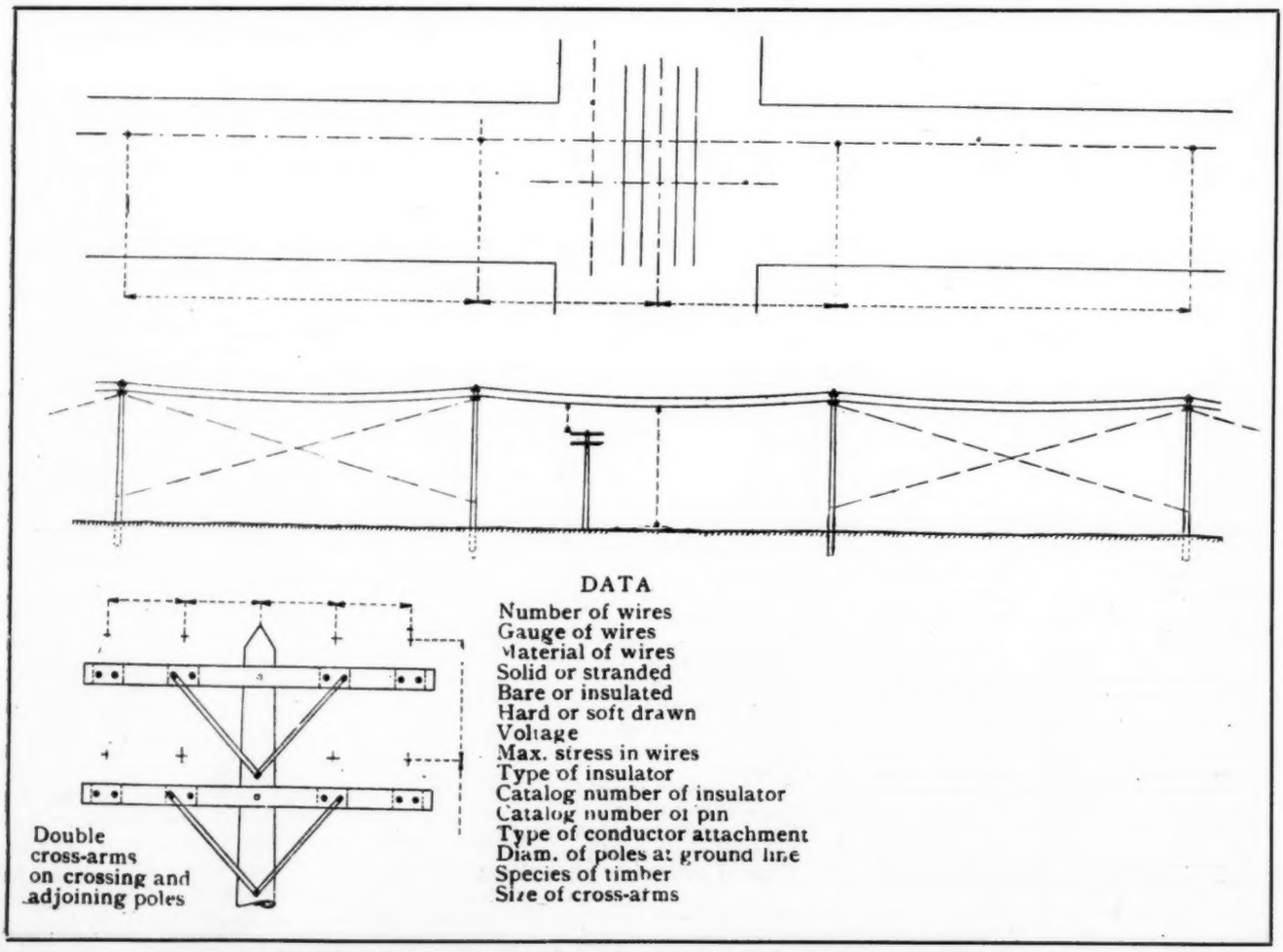
The increase of output has been the constant study of manufacturers, and in many cases at the sacrifice of quality and durability. The retail price of many manufactured articles is so small that we can scarcely realize the possibility of its covering the actual cast of labor and material, without reckoning the usual margin of profit. At any time, and in any part of the country, articles manufactured in large quantities may be purchased, even at retail, at prices which indicate that little can be expected from increased efficiency.

Using the language of Mr. Julius Kruttschnitt:* "A railway is a machine designed to manufacture freight and passenger transportation, it makes ton miles and passenger miles."

Viewed as such a machine it is obviously inefficient, because it cannot be operated to its full capacity at all times, for the simple reason that equipment and labor must remain idle at certain hours on different lines which in the aggregate appears as a stupendous yet apparently unavoidable waste. This is more apparent on single track than double track lines, and it has been the mission of the telegraph to facilitate train movements, as far as may be compatible with safety. The telegraph is an important part of the "machine" but is not considered a revenue producer like the freight and passenger service. It must carry its own burden of cost of operating and maintenance and will no doubt be expected to share in any general increase of efficiency. Every branch of the railway service has for years been represented in various technical associations, twenty-five of which are national in character. There are more than this number of local clubs, and all of these organizations, through their meetings, conventions and committees, are continually engaged in the promotion of efficiency in their various departments. This work is in the hands of experts in their respective lines, and is regularly and systematically supplemented by the technical journals. Not only is every advance step promptly and accurately published, but even the minutest details of improved methods are spread broadcast through the collections of "shop kinks" for the benefit of whoever is interested in railway work. All of this makes for efficiency and possesses the important feature of being exempt from overhead charges, and revolutionary innovations, which may be irritating to managers as well as employees.

This question of efficiency should be thoroughly studied in connection with the introduction of the telephone into the domain of the telegraph. The superiority of the telephone for certain purposes is, of course, admitted by all. In a certain sense a great railway system is an active community in itself. Its organization embraces the entire industrial field. It operates factories and shops, cultivates gardens and forests, it runs hotels and steamships, it has its legal and medical departments, and is generally believed to at least be interested in municipal, state and national affairs. If the telegraph has

*Director of Maintenance and Operation, Union Pacific System and Southern Pacific Company, lecture delivered at Harvard University, April 26th, 1911.



Overhead Crossing Committee's Drawing for Typical Crossing of Wooden Pole Line.

a field of its own in our national life, surely it must also be a necessity in railway organization.

In the exchange of ideas bearing upon the welfare of the telegraph, do not for a moment quail at the suggestion of "higher efficiency." This has been your purpose, and it was for this object that the Association of Railway Superintendents was organized.

The report of the committee on delivery of messages to passengers was presented by E. P. Griffith, Erie Railroad. He stated that the committee had considered forms of messages, receipts and return of addressee's receipt by mail. The Canadian Pacific Railway favored the use of forms. The Postal Telegraph-Cable Co. informed the committee that the cost of blanks would be unduly high in relation to the number of offices. The committee feels that 90 per cent. of the railroads in the country will, before long, co-operate with this work. The report was accepted and the committee continued.

Mr. Griffith also reported for the committee on the Minot monument at Turner, N. Y. The treasurer reported that receipts to date have been $1,616.26; expenses, $127.22; sculptor's retainer, $50; balance on hand, $1.439.05. Mr. Andrew Carnegie has contributed $50 to the work. An autograph letter was read from Mrs. Edward H. Harriman offering to provide the stone and cutting for the project. The report was accepted.

A paper entitled "Live Conductor Requirements for Telegraph Transmission" was then read by the author, Frank F. Fowle, consulting electrical engineer, Chicago. The paper, which TELEPHONY will print in a later issue, was brilliantly illustrated by experimental apparatus. An artificial line representing 500 miles at 10 ohms per mile was used.

At the conclusion of the paper Wirt Tassin, Duplex Metals Co., Chester, Pa., presented lantern slides showing the methods of manufacturing copper-clad steel wire. He laid particular emphasis upon the problems of corrosion, pointing out that locomotives of a single railroad like the New York Central gave out 12 tons of sulphuric acid per year between New York and Buffalo alone. These conditions, with the increase of alkali works in the country, were, in his opinion, largely responsible for the increasing corrosion of metals used in telegraph and telephone practice. A vote of thanks was passed to Mr. Fowle and the meeting adjourned until 9 a. m. Wednesday.

FINAL SESSION OF CONVENTION.

At the final session New York City was designated as the next place of meeting, the convention being set for June 24, 1912. The following officers were elected to serve during the ensuing year: President, G. A. Cellar, Pittsburgh; first vice-president, W. M. Bennett, Chicago; second vice-president, A. H. Taylor, New York; secretary-treasurer, P. W. Drew, Chicago.

The following were named as a committee on arrangements, to serve with a similar committee appointed by the appliance association to complete arrangements for next year's meeting: W. W. Ryder, Chicago; U. J. Fry, Milwaukee; and W. Marshall, Toronto. The attendance at this convention was the largest in the history of the association.

The most important report presented to the association was that of the committee on high tension wire crossings, consisting of the following members:

G. A. Cellar, chairman; G. H. Groce, W. W. Ashald, W. P. Cline, C. Selden, J. G. Jennings, C. A. Parker, J. M. Walker, Wm. Bennett, S. A. D. Forristall.

The general type of crossing recommended by the committee is as shown in the accompanying drawings. This is a joint report, which has been approved by the National Electric Light Association, American Railway Association, American Telephone & Telegraph Co., Postal Telegraph Co., and the Western Union Telegraph Co. It outlines not only methods of building over railways, but also plans for the crossing of telephone lines by high tension wires. On account of its standard character and importance, it is desirable that all persons interested should know where complete copies can be obtained; i. e., from the Association of Railway Telegraph Superintendents, Chicago, or from the National Electric Light Association, New York.

Owing to the length of the report, it is impossible to abstract it in this week's TELEPHONY, but an extended review will appear in an early issue.

The highest credit is due to those who have been active in the preparation of this report, for the results obtained in handling a subject complicated, not only by difficult technicalities, but by the necessity for frequent compromises to obtain results acceptable and valuable to the many separate interests involved.

ENTERTAINING THE LADY VISITORS.

One of the most successful features of the convention was the entertainment provided for the lady visitors. This part

Mrs. S. A. D. Forristall.

of the programme was cared for by an able committee, of which Mrs. Stephen A. D. Forristall, of Malden, Mass., wife of the superintendent of telegraph on the Boston & Maine Railroad, was chairwoman.

The other members were: Mesdames N. E. Smith, M. Magiff, G. W. Conway, L. J. Shay, C. F. Ames, H. J. Kidder and H. N. Tucker. Mesdames Kidder and Tucker are residents of Boston, as are also Mrs. Conway and Mrs. Shay, whose husbands are connected with the New England Telephone & Telegraph Co. Mrs. Ames, another Boston lady, is the wife of the superintendent of the Western Union Telegraph Co. there, while Mrs. Smith's husband is the superintendent of telegraph on the New York, New Haven & Hartford. Mrs. Magiff is the wife of the superintendent of telegraph on the Central Vermont lines.

On Monday the lady visitors were shown about Boston's various points of interest and in the evening they and the convention as a body attended the "Pop" concert given by the Boston Symphony Orchestra. Tuesday morning was devoted to sight-seeing and shopping, while at 2 p. m. the convention, ladies and all, took a trip along the north shore in automobiles. In the evening a trip was made to Revere Beach, the Boston, Revere Beach & Lynn railroad honoring all who wore the convention badge.

On Thursday the landing place of the Pilgrim Fathers, at Plymouth, was visited by the delegates, visitors and wives, a boat conveying the party from Rowe's Wharf at 10 a. m. and returning late in the evening. Another big feature on the en-

tertainment programme was a trip to Old Orchard Beach, Maine, on Friday, the Boston & Maine railroad tendering the convention a train which left Boston at 9:45 a. m. and returning, arrived at 7:30 p. m.

THE GLAD HAND FOR EVERYONE.

The success of the Boston convention was due in large measure to the efforts of the entertainment committee, of which S. A. D. Forristall was chairman. Mr. Forristall enjoys the distinction of being the only superintendent of railway telegraph in the city of Boston and is widely known as an earnest worker and as a popular official who has gotten to the front through meritorious performance, covering a period of some thirty-four years.

He was born in Troy, N. H., in 1861, and launched upon his railroad career with the old Eastern Railway at Gloucester, Mass., in 1877. Serving consecutively as operator, station agent and dispatcher, he was transferred to Boston as chief dispatcher for the Western Division when the road was leased to the Boston & Maine in 1885. On May 1, 1895, he was made superintendent of telegraph and has filled the position most successfully ever since. His home is in the suburb of Malden, where his wife and one son keep him company—and the very best company that New England affords, by the way.

Mr. Forristall's associates on this year's entertainment committee were: N. E. Smith, of the New York, New Haven & Hartford; M. Magiff, of the Central Vermont; and Wm. Marshall, of the Canadian Pacific, at Toronto; also from the Appliance Division; Avery P. Eckert, of the National India Rubber Co., P. W. Miller, of the Kerite Wire Co., and Barney Keisel, of the A. T. & T.

ACTIVE MEMBERS IN ATTENDANCE.

W. W. Ashald, Supt. Tel.; G. T., Montreal, Que.
C. W. Bradley, Richmond, Va.
W. J. Camp, Elec. Engr., Can. Pac., and wife, Montreal, Que.
J. F. Caskey, Supt. Tel., L. V. R. R., and wife, South Bethlehem, Pa.
G. A. Cellar, Supt. Tel., Pa. Lines W. of P., Pittsburgh, Pa.
W. P. Cline, Supt. Tel., A. C. Line, wife and daughter, Wilmington, N. C.
W. L. Connelly, Supt. Tel., C., I. & S., and wife, Chicago, Ill.
J. H. Ditch, Chi. Tel. Insp., Pa. R. R., and wife, Altoona, Pa.
P. W. Drew, Supt. Tel., M., St. P. & S. S. M., and wife, Chicago, Ill.
S. A. D. Forristall, Supt. Tel., B. & M., Boston, Mass.
U. J. Fry, Supt. Tel., C., M. & St. P., Milwaukee, Wis.
T. R. Gooch, C. T. Despr., R. F. & P., and wife, Richmond, Va.
O. C. Greene, Supt. Tel., No. Pac., and daughter, St. Paul, Minn.
E. P. Griffith, Supt. Tel., Erie, wife and son, Jersey City, N. J.
T. M. Haston, Supt. Tel., T., St. L. & W., wife and niece, Bloomington, Ill.
J. L. Heuritzy, Supt. Tel., C. & S., Denver, Colo.
E. D. Hubbard, Gen. Foreman, G. T., and wife, Battle Creek, Mich.
J. G. Jennings, Supt. Tel., C., R. I. & P., and wife, Chicago, Ill.
J. C. Johnson, Supt. Tel., Pa. R. R., wife and daughter, Philadelphia, Pa.
E. C. Keenan, Supt. Tel., L. S. & M. S., and wife, Toledo, Ohio.
V. T. Kissinger, Supt. Tel., C., B. & Q., wife and Mrs. A. V. Cornish, Chicago, Ill.
C. L. Lathrop Supt. Tel., P. S. & N., and wife, Angelica, N. Y.
L. A. Lee, Supt. Tel., P. & L. E., wife and daughter, Pittsburgh, Pa.
C. M. Lewis, Supt. Tel., P. & R., Reading, Pa.
M. Magiff, Supt. Tel., Cent. Vt., and wife, St. Albans, Vt.
W. Marshall, Supt. Tel., C. P., Toronto, Ont.
J. T. Nolan, Chief Opr., Wash. Ter., Washington, D. C.
A. C. O'Brien, Boston, Mass.
G. O. Perkins, Chicago, Ill.
W. H. Potter, Supt. Tel., Southern, and wife, Washington, D. C.
C. S. Rhoads, Supt. Tel., C., C., C. & St. L., Indianapolis, Ind.
Thos. Rodger, Inspr. Tel., G. T., wife and daughter, Montreal, Que.
J. J. Ross, Supt. Tel., Mich. Central, Detroit, Mich.
W. W. Ryder, Gen. Supt. Tel., N. Y. C. Lines, wife and two sons, Chicago, Ill.
C. Selden, Supt. Tel., B. O., Baltimore, Md.
J. B. Sheldon, Supt. Tel., Union Pac., and wife, Omaha, Neb.
E. A. Smith, Boston, Mass.
N. E. Smith, Supt. Tel., N. Y., N. H. & H., and wife, New Haven, Conn.
A. B. Taylor, Supt. Tel., N. Y. C. & H. R., and wife, New York, N. Y.
B. F. Thompson, Tel. Inspr., B. & O., Baltimore, Md.
S. L. Van Akin, Jr., A. Supt. Tel., N. Y. C. & H. R. R., Syracuse, N. Y.
F. H. Van Etten, Supt. Tel., So. Ind., wife and son, Chicago, Ill.
H. A. Vaughan, Lincoln, Neb.
J. M. Walker, Supt. Tel., D. & R. G., Denver, Colo.
W. C. Walstrum, Supt. Tel., N. & W., and daughter, Roanoke, Va.
B. Weeks, Supt. Tel., Ill. Cent., and son, Memphis, Tenn.
F. T. Wilbur, Supt. Tel., Ill. Cent., Chicago, Ill.
W. F. Williams, Supt. Tel., S. A. Line, wife, daughter and Miss Neiley, Portsmouth, Va.
F. S. Work, C. D., L. & S. R., Warwick, N. Y.

ASSOCIATE MEMBERS IN ATTENDANCE.

E. A. Adams, Chicago.
Gregory Brown, New York.
A. N. Bullens, Boston.
W. F. Crowell and wife, New York.
Albert Douglas, Chicago.
A. P. Eckert, wife and daughter, New York.
E. M. Fisher and son, Nashville, Tenn.
F. F. Fowle, Chicago.
A. G. Francis, wife and two sons, Chicago.
J. J. Ghegan, wife and daughter, New York.
W. E. Harkness, New York.
E. E. Hudson, Orange, N. J.
H. Homer, Philadelphia, Pa.
B. A. Kaiser and wife, New York.
J. M. Lorenz and wife, Chicago.
W. O. Nevill, Kansas City.
G. W. Peck, New York.
A. D. Walters, New York.
A. Wray and wife, Chicago.

GUESTS OF RAILWAY TELEGRAPH ASSOCIATION.

H. N. Tucker and wife, Boston.
G. A. Joy, Chicago.
D. C. Keefe and wife, New York.
Mrs. J. N. Tidby and son, St. Paul.
Mrs. Geo. S. Minot, Brookline, Mass.
Miss M. L. Allison, Chicago.
Thos. R. Taltovall, New York.
G. K. Heyer, New York.
H. G. Thompson, Orange, N. J.
W. H. Graffis, Chicago.
Howard Sprague Knowlton, Newton, Mass.
C. S. Rhoads, Jr., Sandwich, Ill.

(*Concluded on page 36, advertising section*).

Telephone Economy in Railway Service*

Review of the Growth of Train Dispatching by Telephone—Early Difficulties and Opposition Encountered—Approximately 48,000 Miles of Line Now Equipped in the United States and Canada—Practical Reasons for Superiority of Telephone Over Telegraph

By G. K. Heyer

There are few, if any, recent developments in the railway field which in so short a time have created such a widespread interest as that of telephone train dispatching. The advances which have been made in this field are somewhat marvelous, particularly when we take into consideration the natural prejudice and opposition which was encountered at the outset. It is a matter of history, however, that all great advances have been made in the face of opposition from some quarter. The hardships and struggles of Morse and Bell are well known to all, and both of these men were in a certain sense indirectly responsible for the great strides which have been made in railroad development.

The telegraph coming into the railway service as it did in 1850 through the foresight of Superintendent Chas. Minot, of the Erie, made possible the abolition of the old time interval and flag system of advancing trains and the adoption of the present telegraph dispatching system, which it was thought for many years possessed sufficient advantages to allow the other branches of our railroads to be developed to the greatest possible efficiency.

While the advent of the telephone has shown this to be a somewhat erroneous supposition, it may be said to the credit of the telegraph that its use made possible the increased traffic capacity of the railroads, as well as beneficially influencing many other branches of railway development. In spite of the improvements obtained by the telegraph, the first engineer who received a telegraph train order refused to run on it, believing that the risk attending such action was altogether too great.

The very nature and underlying principles of the telegraph are such, however, that after railway development had reached a certain point, it was found that there was room for improvements which could not be accomplished if the telegraph method of operation were to be retained.

In the search for increased efficiency in the telegraph department, the telephone, 31 years after its invention, was turned to as offering the greatest possibilities. The one disadvantage of the telephone was that the requirements for commercial service have been such that there was little or no demand for a means of selectively calling any one station on a long and heavily loaded line. This disadvantage went the way of all others which stand in the way of progress, and there are at the present time several selective devices on the market which, to a greater or lesser degree of efficiency, answer the requirements.

The standard telephone equipment and practice were also found in some features to be inadequate and there have been developed special circuits and apparatus, which have greatly improved the service and increased the flexibility and efficiency of the telephone system.

The maximum efficiency of the telephone system has not, however, by any means been reached, and there are under development and study at the present time many improvements, which indicate that there are no requirements for special service within the range of reason which cannot be met.

There were those, of course, who could not be convinced that any changes in the method of handling trains which had been so satisfactory for sixty years could be made without risk, and all of those interested in the subject are familiar with the arguments which were advanced against the adoption of the telephone. Notwithstanding these arguments and the fact that a great many of the present day railroad officials grew up under the influence of the Morse system, there were several superintendents of telegraph and other officials who realized from the first that with a reliable calling device there was no comparison between the results which could be obtained with the telegraph and the telephone, and it is to these men, the pioneers in telephone train dispatching, that the success since obtained is largely due. To these men certain advantages were apparent, while many others since conceded to the telephone method of operation remained to be discovered after the telephone equipment had been put in actual service.

The advantages in favor of the telephone which will be granted without hesitation by all those who have closely observed the service are that it is more flexible, quicker, safer and more reliable, and in addition it makes possible better discipline and co-operation, as well as providing means for officials who are not familiar with the Morse code to exercise supervision and obtain immediate and accurate information in cases of emergency.

Tremendous Expansion of the Business.

There has been so much said in the technical papers and in special papers prepared by recognized authorities on the subject in support of the advantages given above that it does not seem necessary at this time to dwell upon the reasons from which these advantages are deduced. Suffice it is to say that the possibility of these advantages was considered by the railroad officials of such importance as to warrant the expense incident to the installation of the first telephone train dispatching equipment on some of our most important trunk line railroads. These first installations, made in the fall of 1907, were so successful that there are today in the United States and Canada approximately 48,000 miles of line, or nearly 20 per cent. of the total railroad mileage, equipped for telephone train dispatching, and the results obtained in every case sustain the judgment of the early advocates of the telephone.

Upon investigation in these days of scientific management, efficiency methods, etc., there stands out alone, far more important than any of the other advantages above mentioned, although dependent in a great measure upon them, that of economy, or the saving in dollars and cents which may be obtained by the use of the telephone.

Some of the factors which increase the traffic capacity and therefore make for economy in the telephone method of operation are:

1. The time of calling stations, sending orders and receiving train reports is so greatly reduced (30 to 50 per cent.) that the time gained is available for the dispatcher in better laying out his work, planning meeting points and handling the endless amount of detail which the position requires.

2. Dispatchers are more efficient, due to the fact that they are relieved of the mental and physical strain attending the continual operation of the Morse key, which has a most damaging effect on the nervous system and frequently results in what is known as operators' paralysis.

3. Through the use of the portable and siding sets train crews may get into communication with the dispatcher and receive their advance orders directly from him. This has proven a most valuable branch of the service, especially in advancing freight trains which have taken a siding some distance from a station or tower. Also, during the night, when on

*Paper read at convention of Railway Telegraph Superintendents at Boston this week.

some roads part of the stations are closed. In this latter case the train conductors may be provided with keys and in that way have access to the dispatching telephone.

4. The dispatch and exactness with which reports of progress on clearing up wrecks and repairing breakdowns is given to the dispatcher, thus allowing him to determine as to the handling of other trains, routing them over other roads, etc.

It has been estimated by some of the roads that if, from a wreck or any other cause, traffic is held up, the additional expense incident thereto amounts to approximately $1,000 per hour. On the average, with the telephone system, wrecks are cleared up and traffic moving again in from one-half to two-thirds of the time that is possible with the telegraph. A considerable saving, therefore, can be effected in these features of railroading, and approximate yearly figures may be arrived at by knowing the cost of suspended traffic and multiplying this, together with one-third or one-half of the average time of clearing wrecks and the number of wrecks per year.

This will seem impracticable to many, but it is by watching for such leaks as this and applying the necessary remedies that many of the successful commercial enterprises are made to pay substantial dividends on the capital invested. It is a well known fact that at the present time many manufacturing plants derive a large part of their profits from the by-products which a few years ago went as waste.

It may seem strange to many, particularly those who have not yet installed telephone equipment, to hear that such a saving is possible. Of course, the nature of the equipment is such that the initial cost of telephone apparatus is much higher than that of the telegraph equipment. Further, the cost of maintenance is also considerably greater with the telephone. The saving, therefore, does not show on the books of the telegraph department, and in fact, this department shows a somewhat increased running expense. This increase is, however, insignificant when compared to the reduction in the cost of handling traffic. The traffic or transportation department is then the place to look for the real excuse for the expense of providing the telephone system.

An Argument for Adequate Records.

There has as yet been no general movement among the railroads using telephone equipment to keep such records as will show approximately the comparative cost of handling traffic with the telephone and the telegraph. It is believed, however, that the compilation of such information will be so convincing that those who have hesitated to authorize the expense of installing telephone equipment will see that it is costing them real money for each month's delay.

The difficulty and expense incident to securing from the records kept at the present time information from which may be computed reliable figures of comparative expense has undoubtedly delayed the preparation of such statistics. W. F. Williams, of the Seaboard Air Line, has, however, prepared information which shows that for one month on 150 miles of single track on his road, and with an 11 per cent greater density of traffic for 1910 when the telephone was used, a saving of one hour and sixteen minutes in the running time of all through freights was effected over the same period for 1908 with the telegraph.

From this saving of one hour and sixteen minutes for through freights, it will be seen instantly by computing the pay of the train crews, reduction of over-time charges, increased efficiency of the motive power, the reduction in fuel consumption, the increased speed of hauling perishable freight, etc., that on any road the telephone is a saving proposition. In fact, these items when reduced to a monetary value showed on the Seaboard a monthly saving of $1,000 to $1,200, or a yearly saving of approximately $12,000.

Comparing the cost on the telephone equipment based on $100 per mile (which includes the cost of telephone and selector apparatus, line wire—No. 9 B. & S. 208 lbs. to the mile—and installation), to the yearly saving in handling through freight traffic alone, it will be seen that the telephone will pay for itself the first year. In other terms, the yearly saving amounts to in the neighborhood of $100 per mile. Carrying this still further, we may say that for the 48,000 miles equipped there should be a difference in operating expense of $4,800,000.

This may seem to some altogether too optimistic, but when considering that these figures are based on the through freight business alone and do not take into account local freight or other branches of the service, there is little doubt but that when accurate records are kept, and all of the various items entering into the operation of the system are considered, the saving shown will be still greater.

Telephone Dispatching Reduces Time.

From information received from various sources, it is evident that, on all roads hauling any considerable amount of through freight, the time consumed has been reduced since the installation of telephone equipment to compare very favorably with that shown on the Seaboard. For instance, on the D., L. & W., after the completion of the service between Binghamton and Buffalo, a distance of 206 miles with 46 stations, the through freights were run in approximately two hours less than was the rule when the dispatching was done by telegraph. Any number of other instances of this kind might be cited.

In the consideration of this question, no account has been taken of the possibility of combining or extending dispatching sections, decreasing the number of employes, providing employment for men who have received such injuries in service as to incapacitate them for the class of work previously performed, etc. Also, the train dispatching circuit alone has been considered.

With the great increase in the number of telephones for commercial service and the consequent economies effected, it is only to be expected that the use of the telephone for railway service will gradually be extended to embrace many other branches. In fact this has already been done on some of the more progressive roads.

For handling message or other commercial and routine business between stations, the worth of the telephone has already been proven on several roads, and it is estimated that for this class of business one telephone circuit has the capacity of two telegraph circuits. On roads where the traffic is light, both the dispatching and message work can be carried on over the same pair of wires.

In connection with manual blocking, the old telegraph wires may be utilized, thus providing a grounded block circuit, or, if convenient, a metallic circuit may be employed. Either the grounded or metallic circuit is far superior to the telegraph. Blocking sets or a switching mechanism may be provided to allow one set of telephone equipment to be used on the train, message and block wires, and to cut two blocks into one for night operation.

The loud speaking receiver is admirably adapted for this service and it is thought will ultimately replace the ordinary receiver for block work.

Another use for the loud speaking receiver is in the dispatcher's office, where it may be connected directly to the train wire and relieve the dispatcher of wearing the head receiver at least a part of the time.

This instrument, in connection with a special transmitter, may also be used in terminals for announcing trains.

The yard master in the discharge of his duties will find the yard circuit of the greatest value in keeping in touch with the various departments over which he has supervision.

For moving trains out of terminals the telephone has in cases where installed proven so much quicker and more flexible

that there is but little doubt that all terminal circuits will within a short time be telephone circuits.

The train order semaphore, one of the recent developments, which consists of a standard semaphore mast arranged for mounting the selector and telephone apparatus in a weather-proof compartment, can be placed at any point along the line and the telephone and selector connected dircetly to the train wire.

In the large freight sheds and at transfer points, in office buildings, etc., and in fact at all places where direct communication between parties not located in the same room is desired, the telephone will prove invaluable.

Commercial Phase of Railway Telegraph Convention

The importance of the superintendent of railway telegraph as a buying factor was amply demonstrated by the attendance of many manufacturers, dealers and representatives of large commercial interests.

The Kellogg Switchboard & Supply Co., of Chicago, made a very creditable exhibit with G. A. Joy and A. Wray in charge. This company showed a full line of equipment for use in telephone train despatching, and featured its "booster circuit," which intensifies transmission between the despatchers' office and any station regardless of how many may be on the line. Another feature of interest was the portable sets of various types, used either for testing or for telephoning from points between stations. Kellogg reinforced receivers and transmitters also have made a big hit in railroad service on account of their extreme durability.

The General Railway Signal Co., of Rochester, N. Y., exhibited that company's new and improved system of selective signalling for train service. Of especial interest was the apparatus for supplying current for the system, which comprises a 12-volt battery, primary or secondary, stepped up by a motor-generator set to suitable line voltage for selector and bell operation. The company was represented by M. F. Geer, sales engineer; R. C. Leake, assistant engineer; and Lyman E. Dodge, patent attorney.

The National Telephone Selector Co. of New York exhibited selective apparatus for telephone train despatching, G. M. Seeley and E. Kleinschmidt being in charge.

The National Carbon Co., of Cleveland, Ohio, made an exhibit of its batteries with E. L. Marshall and F. C. Park in charge.

W. N. Matthews & Bro., of St. Louis, Mo., exhibited the newly improved "Telefault," guy clamps, anchors, etc., and who should be in charge but Victor N. Crawford, otherwise "Happy"?

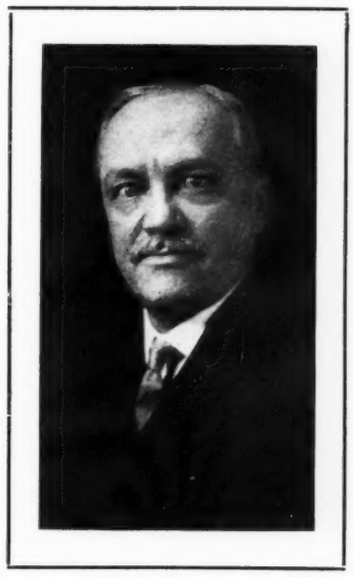
Another conspicuous feature at the convention was the exhibit of the Randall Telephone Manufacturing Co. in parlors J and K, where was shown Prof. Randall's railroad transmitting and receiving apparatus for train despatching. This device is designed to dispense with the head telephone and to enable one to hear clearly and distinctly at some distance from the receiver, as well as transmit messages double the distance possible with any of the present transmitters. To do this the company employs a newly patented transmitter using much greater working current. Increased power means not only increased distance, but working over more difficult circuits, such as circuits of iron wire, or low-cast copper circuits, which in many cases are now already in use for short distances.

Since the exhibition by Professor Randall before the Chicago Independent telephone convention last February, he has further perfected and simplified his repeater so that only a single adjustment is required, and that one which any telephone man can readily understand and use. The style in which the Randall instruments are designed and made was much admired by the telegraph and telephone engineers at the Boston convention, one prominent member of the association stating that among the things most needed in train despatching by telephone, was dispensing with the head telephone, as arranged for by Prof. Randall. The Randall Telephone Manufacturing Co. already has its offices in New York and Boston, and now is establishing a factory in New York, whence it expects to be able to supply soon the orders already received.

The Waterbury Co., of New York, manufacturers of cable, was represented by John B. Adams.

The *Telegraph and Telephone Age* was represented by Thomas R. Taltavall, editor; his brother, John B., another well known attendant at these conventions for many years, being now absent on a tour of Europe.

The *New England Telephone Topics*, one of the Bell's best publications, was represented by Albert N. Bullens, another



Mr. E. A. Chenery.

"live wire," who is almost equally as well known as the Taltavalls.

The Nungesser Electric Battery Co., of Cleveland, O., was represented by G. A. Briggs, of the Chicago office.

The Rock Island Battery Co., of Cincinnati, Ohio, had R. B. Crane in charge of its interests at the meeting.

Louis de Goll, president of the company, represented the Universal Telegraphic Appliance Co., of Baltimore.

The Kerite Insulated Wire & Cable Co., of New York, had as its representative the popular chairman of the Telephone & Telegraph Appliance Association, P. W. Miller.

The National India Rubber Co., of New York and Bristol, R. I., sent as its representative another good official of the T. & T. A. A., Avery P. Eckert.

TELEPHONY, which leads in everything pertaining to railway telephone systems and methods, had its vice-president, William H. Graffis, and its Boston correspondent, H. S. Knowlton, on hand to report the proceedings.

Thomas A. Edison, Inc., of Orange, N. J., was represented by E. E. Hudson, of the primary battery department; while the Edison Storage Battery Co., also of Orange, was represented by H. G. Thompson.

The Van Akin Telephone-Arm, of Liverpool, N. Y., was represented by S. L. Van Akin, Jr.

The Duplex Metals Co., of Chester, Pa., exhibited some novelties which took the delegates by storm. By means of a stereopticon, excellent views were shown of the company's plant and all of the processes employed in making its famous copper-clad wire. Another feature was an artificial line, representing 500 miles of telegraph line, with cut-ins at stated intervals and the two terminals; this exhibit serving for experiments and demonstrations. The gentlemen in charge were: R. A. Paterson, general sales manager at New York; W. T. Kyle and F. F. Kowle, of Chicago; E. M. and G. P. Fondersmith, of New York, and W. Tassin, of Chester.

The Universal Telegraph Co., of 107 East Lombard street, Baltimore, Md., exhibited the Potts telegraphic typewriter. This machine is a ball bearing, motor-driven typebar typewriter. As exhibited, these typewriters each having eight magnets, are connected by eight-wire cables. The operation of the keyboard actuates one magnet at a time for punctuation marks, two for letters, and three for numerals. The transference of the signals is by a positive electrical connection, through the cable from one machine to the other. Auxiliary selective apparatus is not used. The speed is about 65 words a minute.

The machines may be installed at distances not prohibitive of the use of cables and may intercommunicate in pairs, or any machine may transmit to any other or, in fact, to all the machines of the group. Used in this way they are intended for railroad yards and large establishments. The current requisite is 110 volts direct current.

When transmitting, the machine gives a page record of the message sent. When receiving, the messages are recorded on a continuous band about 8 ins. wide and may have printed headings at equal distances and the messages may be cut off of equal length, or separate blanks may be used. The operator at the receiving machine may "break" the sender by depressing the space bar and transmit back. The machine at any station may be used locally as a motor-driven typewriter.

These same printers are used also for telegraphing in simplex and duplex with auxiliary selectors of a simple type, and in multiplex with a simplified Rowland-type line method. The speed is set at 65 words a minute and may be quickly changed to a lower rate. Telegraph circuits of 500 miles in length may be operated with either system and through Morse repeaters on longer circuits. Composite circuits may be operated up to quadruplex.

The universal system of this company includes an attachment to the typewriter which perforates the message in addition to printing the text in page form. Messages may be prepared on the typewriter in this manner locally, or they may be received in this manner on the typewriter telegraphically. An automatic transmitter, similar in appearance to the typewriter, transmits these messages from the perforations. A circuit operated automatically can carry about 50 per cent more than the same circuit operated manually. In any large organization the messages may be prepared and verified in any individual office and sent to the telegraph department for automatic transmission. The exhibit was in charge of Dr. L. M. Potts, chief engineer of the company.

The Buda Co., of Harvey, Ill., was represented by J. L. Artmaier, of the New York office.

The Western Union Telegraph Co. was represented by Belvedere Brooks, general manager; A. G. Saylor, general Eastern superintendent, and C. E. Chetwood, electrical engineer.

The American Telephone & Telegraph Co. sent a quartette, including B. A. Kaiser and George W. Peck, of New York; Henry Horner, of Philadelphia; and Albert Douglass, of Chicago, who look after the railroad work of the commercial department.

The Manhattan Electrical Supply Co., of New York, made an attractive exhibit of its line of telegraph apparatus, Peerless pivoted armature bells and Red Seal dry batteries, the latter being in great favor on the New York Central and other leading railroads. The exhibit was in charge of D. C. Keefe.

J. H. Bunnell & Co., of New York, was represented by the company's president, John J. Ghegan, who also was accompanied by his wife and daughter.

The Sandwich Electric Co., of Sandwich, Ill., was represented by E. C. Hennis, secretary; and C. S. Rhoads, Jr., engineer. The firm made a fine exhibit of its line of telephone train dispatching apparatus.

The Holtzer-Cabot Electric Co., of Brookline, Mass., was represented by C. W. Holtzer, president; T. W. Ness, general manager; C. H. Gogee, southern manager at Baltimore; E. L. Holtzclaw, of Norfolk, Va.; and T. F. Pickett.

The Railroad Supply Co., of Chicago, had its interests well looked after by H. M. Buck, who is secretary-treasurer of the Railway Appliances Association.

The Standard Underground Cable Co., of Pittsburg, made an interesting exhibit of its products, with H. P. Kimball and Richard G. Harris in charge.

The American Telegraph Typewriter Co., of New York, gave a working demonstration of the Cardwell apparatus, under the personal supervision of Dr. Geo. A. Cardwell, of New York; W. H. Eckert, assistant to the president; H. C. Adam, secretary; and J. F. Symonds, superintendent of the Boston office. A line between the convention headquarters at the Brunswick and Worcester, Mass., transmitted messages during the convention—an exhibit which received general attention from the delegates and visitors.

The Central Electric Co., of Chicago, was represented by J. M. Lorenz.

The Western Electric Co. featured its special equipment for telephone train dispatching and was represented by a number of its salesmen.

The United States Electric Co. had a complete exhibit of the Gill selective calling as applied to railway operation, in telephone and telegraph train dispatching and message service and to the dispatcher-controlled train order semaphore. A train dispatcher's desk was shown fully equipped for operation and a circuit of ten Gill selector stations was set up. The box outfits include selectors on both two-figure and four-figure combinations and for calling by main line and by local battery bells. The new two-figure combination selectors, making a call in three seconds, were also shown.

The dispatcher's outfit includes a cabinet of Gill automatic calling keys, a foot switch, the flexiphone and Burns arms for telephone dispatching, and the universal key for intercommunicating service. For emergency work there is a complete portable dispatcher's outfit which can be rushed to the scene of a wreck and the dispatcher's work done in the field with an equipment as efficient as his permanent office set. Th way station telephone apparatus was shown set in a box and also a leather-cased hand telephone set. The telephone sets included the new reinforced shell transmitters and receivers.

The selective train order semaphore was a prominent feature of this exhibit. It is a full-sized electric slot semaphore with the United States Electric Co.'s selective operating mechanism and answer back. The dispatcher has absolute control of the signal wherever set or however attended. When thrown to "danger" the signal reports itself audibly by induction over the telephone wire and is mechanically locked against clearing until the dispatcher gives electrical permission so to do. This system operates as far as a telegraph impulse may be effective.

Other apparatus shown included a phantom coil set in a box and a simplex set. The testing devices included the

(*Concluded on page 36, advertising section*).

Chinese Telephone and Telegraph Systems.

The Chinese Empire has started carrying out a program of improvements in the telephone and telegraph systems of that country, as outlined by the Board of Posts and Communications. Stations will be established for experimental purposes and also for the manufacture of telephone and telegraph instruments and supplies

Telephone systems in Tientsin and Kiangsu and Chekiang will be extended and enlarged. Experiments will also be made with automatic telephones in the city of Peking.

In 1912 telephone and lighting systems in Hupek Province will be extended, and a telephone system will be installed in Hunan and Shantung Provinces.

In 1913 China will participate in the International electrical conference. During this year experiments will be made with the automatic telephones in Canton, Tientsin and Shanghai and with manual systems in Shensi and Honan Provinces.

Chicago Company Using Magneto Instruments Within City.

Subscribers to the Chicago Telephone Co., residing in the Burnside district, with the city limits of Chicago, made complaint to the city council recently because of the old type of magneto telephone they were furnished. After the passage of a resolution by the city council the commissioner of public works notified the Chicago Telephone Co. to install common battery instruments in Burnside.

Contrast of Open Wire and Cable Construction.

The accompanying views, obtained by TELEPHONY some time ago through the courtesy of Mr. F. C. Toepleman, general

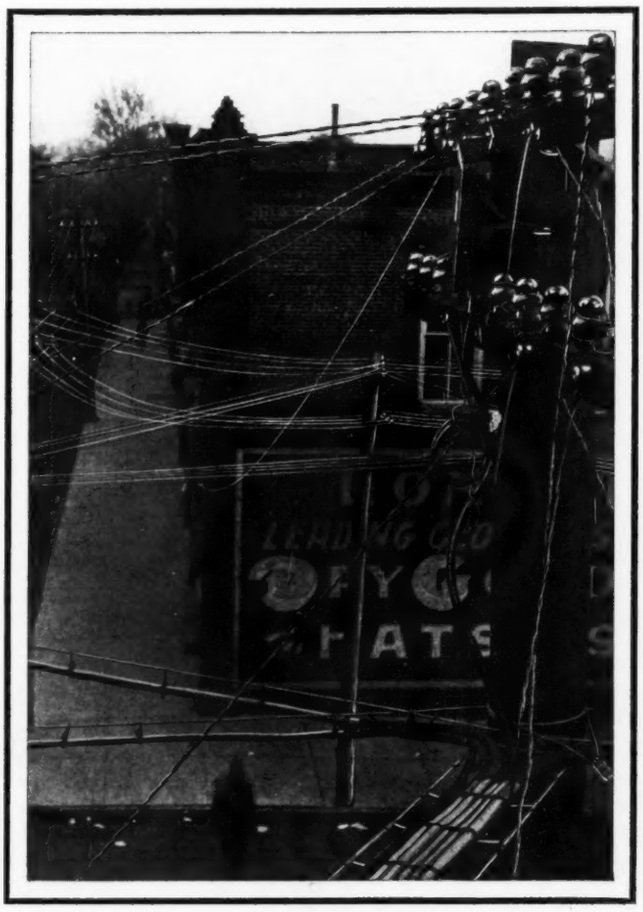


Fig. 1. All Cable Reduced Maintenance Expense.

manager of the Home Telephone Co., Henderson, N. C., show how maintenance conditions are improved by the proper use of cable. This was formerly the company's office pole. The condition created by the congestion of open wire was fully relieved by the installation of cable extending to the various portions of the moderate sized town served by the exchange.

Fig. 1 shows conditions prior to the installation of the cable. The possibilities of trouble which exist in construc-

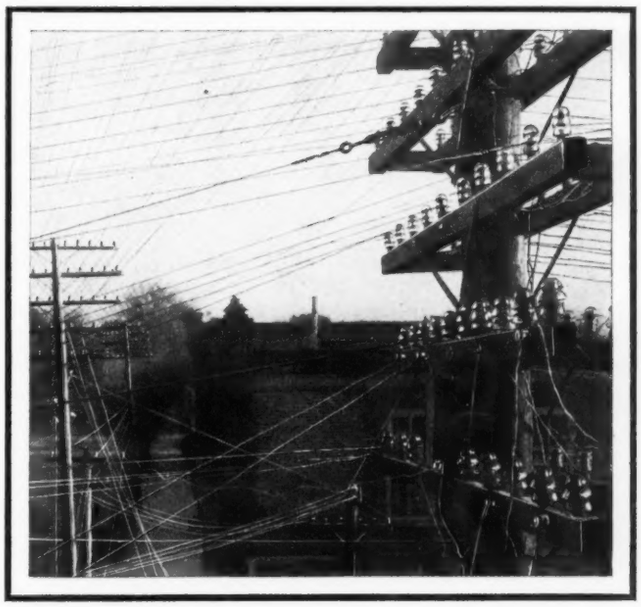


Fig. 2. Maintenance Expense Overbalanced Low First Cost.

tion of this type are familiar to every telephone man, and Mr. Toepleman reports that his expectations of reducing them by using cable, as shown in Fig. 2, were so amply fulfilled that on completion of this and other similar reconstruction jobs he became enthusiastic for all-cable construction.

Dramatic Interpretation of the Telephone.

Miss Helen Ware, the telephone operator in Mr. Belasco's "The Woman," thus explains the functions of her position, the explanation being the keynote of the play: "One of the big central telephone stations is the world—all boiled down and spread out on the switchboard—and right there on that board thousands of people are meeting, their thoughts are crossing each other and the 'hello girl' is perched upon the top of a high mountain looking at them. That's the real world. What people are thinking, and it's all on the board, good and bad, winners and losers, rich and poor, all mixed up together, all going on at once. And the operator is a sort of a Fate who sees that the right people get each other, and, like Fate, she has to let them work out their own salvation, though she could often save a lot of trouble if she mixed in. I tell you it is hard not to interfere sometimes."

Local Paper Furnishes Telephone Directories Free.

The latest directory of the Henry Telephone Co., Henry, Ill., and connecting lines, carries an exceptionally large amount of advertising for a directory of its size. The left-hand pages throughout the entire book carry advertisements, and the right-hand pages bear the subscribers' names and telephone numbers.

Mr. C. A. Camp, manager of the company, reports to TELEPHONY that the directories, 800 in number, are furnished the telephone company free of charge by the publishers of the local paper in consideration of their being allowed what they can make by the sale of advertising placed in the book.

Important Telephone Papers at A. I. E. E. Convention

A Brief Outline of the Discussion of Telephone Subjects at the Annual Meeting of Electrical Engineers—800 Members in Attendance—New Data on Multiplex Telephony, Traffic Engineering, Telegraph Transmission and Loaded Lines in Papers and Discussions

The annual convention of the American Institute of Electrical Engineers, held at Chicago this week, was an admirable closing of the great year of constructive work which stands to the credit of the Institute in the period of President D. C. Jackson's administration, and was an equally auspicious opening of the new year during which Gano Dunn will hold the high office of president of the Institute.

About eight hundred members were present. Papers were presented in accordance with the program printed in TELEPHONY of June 17, and called forth much interesting and valuable discussion. The social features and excursions of the convention were greatly enjoyed. On Wednesday members of the Institute were the guests of the Chicago Electric Club at luncheon. President Homer E. Niesz, of the Electric Club, after a brief speech of welcome, introduced President D. C. Jackson of the Institute, who was followed by President-elect Gano Dunn. Among other distinguished members of the Institute seated at the president's table were T. C. Martin, secretary, of the National Electric Light Association, and Dr. C. P. Steinmetz.

The telephone session was held apart from the meeting devoted to other branches of the electrical arts, on Wednesday afternoon. J. G. Wray presided.

The first paper to come before the meeting was entitled "Multiplex Telephony and Telegraphy by Means of Electric Waves Guided by Wires," by Major George O. Squier, of the U. S. Signal Corps.

As Major Squier was unable to be present to read his paper, it was abstracted by Samuel G. McMeen.

F. B. Jewett was called upon to open the discussion. He presented many interesting detailed statements to support his conclusions that, while Major Squier's system gave admirable and interesting results as a laboratory experiment and on short lines, it was hardly adapted to use over extremely long lines, or in a long distance or exchange network.

E. F. Alexanderson, who developed the high frequency generator used by Major Squier, and originally used by Prof. Fessenden in his wireless work, mentioned experiments in another line of investigation which seemed to show that it would be impossible to telephone over wires with waves of extremely high frequency.

John B. Taylor spoke on methods of signaling in connection with the paper, and the discussion was closed by Mr. McMeen.

Frank F. Fowle was absent, and an abstract of his paper on "Telegraph Transmission" was read by Franklin H. Reed. Appended to the abstract was a letter from Mr. Fowle, saying that the theories presented in the paper had recently been tried out and verified upon an artificial line constructed by Mr. Fowle.

The discussion was opened by Bancroft Gherardi, who spoke briefly on insulators and the design of insulators, a topic also important with reference to telephony. His company has even been interested in suggestions of the advantages of a suspended type insulator. Whether such advantages exist can only be determined by extending experiment. There would be many mechanical difficulties to overcome. It has not been demonstrated that the ordinary pin insulator is not the most effective type.

Mr. Fowle's paper, which was printed in the June *Proceedings* of the Institute, and of which an abstract will appear in an early issue of TELEPHONY, touched briefly, but in a highly complimentary way, upon the properties of copper-clad steel wire. Mr. Gherardi admitted that he did not have sufficient data to permit a full discussion, but stated that its resistance is 2½ times that of hard drawn copper of the same diameter, and that he should suppose the same reasons which led to the substitution of copper for iron would act as a deterrent from the adoption of a wire having 40 per cent. of the conductivity for the same cross-section as hard drawn copper.

G. D. Shepardson spoke briefly on the subject.

Bancroft Gherardi read an abstract of his paper, "Commercial Loading of Telephone Circuits in the Bell System." He said that the adoption of loading means practically the adoption of a high potential transmission system.

The discussion was opened by E. H. Bangs. F. B. Jewett stated that actual attenuation results, he expected, would check closely with the computed values, when it became possible to compute with accuracy the four constants, resistance, inductance, capacity and bridging conductance, produced not only by ordinary leakage but by dielectric dissipation. The latter is greater in cable.

When one becomes able to determine these constants with the same accuracy which is possible for direct current quantities, it is believed that the formula found to be correct will be very rigorously in accord with the present form.

Upon loaded lines the effect of low insulation is so much more pronounced, that it has been necessary to adopt a much higher grade of line maintenance. Where there are many loading coils, there must be maximum simplicity. In cable this means the same capacity for all conductors.

With regard to reflection losses, the higher sending end impedance means that terminal apparatus must be so designed as to enable the connection of all classes of circuits with a minimum loss.

E. H. Colpitts gave a very interesting review of the many difficult subsidiary engineering and physical investigations by which the practice of loading has been made possible.

E. B. Craft spoke on the construction of loading coils, mentioning, among other points that in the type used in connection with the New York-Philadelphia cable, it was necessary to use wire having enamel insulation only .0005 inch thick.

G. H. Shepardson brought up the point of terminal arrangements by a question which was answered by Mr. Gherardi in his closing remarks.

Allard Smith discussed the application of loading to circuits of the Chicago Telephone Co.

J. G. Wray said that it would be impossible to carry on a conversation from one end of the city of Chicago to the other entirely through cable without loading coils. People generally think of the loading coil in connection with long distance lines, but its use in large cities has hardly received the general attention it deserves.

F. P. Valentine read a very brief abstract of his paper "Problems in Telephone Traffic Engineering." It will be printed in full in TELEPHONY, starting in this number. Its discussion was opened by Albert P. Allen, who mentioned among the complexities of traffic engineering the variation in the busy hour load from day to day and month to month, and also the variation between the lengths of conversations carried on by subscribers. The problem is, in a large city, to determine the number of trunks required to give instantaneous service.

in some of the mechanic arts as the results of scientifically conducted motion studies. The variation of the requirements imposed upon a telephone operator makes it impossible to establish efficiency standards for manual traffic. If some device could be inserted between the telephone and the operator, which would furnish girls with work at the precise speed at which they could take it, this would be a preliminary to an increase in efficiency.

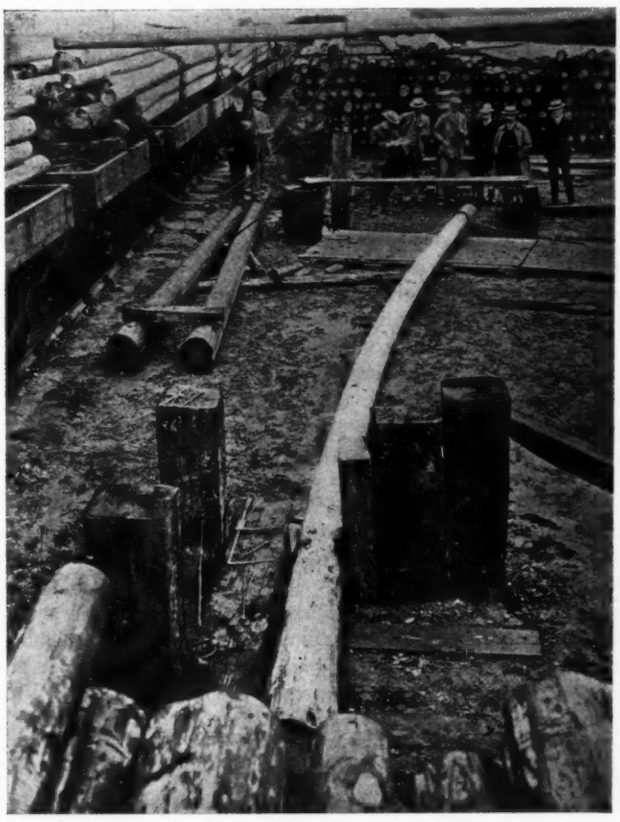
Mr. Gherardi remarked that such a problem required the cooperation of plant and traffic engineers, and that it was the highest type of problem with which telephone engineers have to deal.

Mr. Campbell said that it is impossible to bring operating to the highest efficiency, unless the work can be gauged and standardized. If an automatic device could bring even a percentage of the operators from 60 to 100 per cent. efficiency, it would make a considerable decrease in cost.

Mr. Valentine closed the discussion with the remark that the extent of the studies which have been carried on along this line have not been generally appreciated. Weight can be given to variations. The work upon equating calls is briefly outlined on the paper, but will bear most extended discussion.

Testing Poles in a British Pole Yard.

The firm of Richard Wade & Son, Hull, England, distributes poles throughout England and the colonies, and is one of the largest pole dealers in the world. Not only do modern business methods prevail in the work of this firm, but it is fortunate



Deflection Wooden Pole Can Sustain Without Cracking.

in having as a partner one who is keenly interested in the scientific side of the pole business. Mr. Christopher Wade some time ago presented an interesting paper on pole tests before the British Institution of Electrical Engineers. The accompanying views show the method of applying stress to determine the ability of a wooden pole to resist the forces of nature which it must bear under practical working conditions.

Electric Fans in Telephone Company's Manholes.

Through a spare duct of its conduits in the underground section of Muskogee, Okla., the Pioneer Telephone & Telegraph Co. has carried a pair of No. 12 110-volt duplex conductors in Greenfield armored conduit for operating electric soldering irons, fans and lamps in the forty-seven manholes of its sub-surface system, says *Electrical World.*

Dynamometer Test for Breaking Strength.

The electric-service pair was installed by the telephone company's employees in one of the spare lower ducts of the tile conduit at the time of pulling in the other cables, and in each manhole it is led to an outlet box inclosing an Edison-base socket into which any desired cord extension can be plugged. Use is made of the electric service thus available for operating electric soldering irons and also for lamps where the hole is dark or work has to be done after night. An especially useful purpose of the wires, however, is the operation of electric fans. During the warm summer weather in Muskogee these fans are genuinely appreciated by telephone employees who have tedious jobs of cable splicing and wiping to do in the hot manholes. The supply of energy for the underground-manhole system is from the lines of the Muskogee central-station company, the wires entering the conduit through a separate meter in the telephone company's basement. Last summer, when a good deal of new construction work was being done in the underground manholes, an average monthly consumption of 100 kilowatt-hours was registered by this meter.

Ordinance to Protect Wires in House Moving.

An amendment has been drafted and filed by the City Council of Richmond, Ind., to the house moving ordinance, which will protect the wire using companies. It provides that no building shall be moved which will necessitate the disturbing of telephone or telegraph or other wires. It was shown by attorneys for the various companies that they suffered considerable damage at various times from this cause.

Problems in Telephone Traffic Engineering

This Valuable Paper, Presented at the Chicago Convention of the American Institute of Electrical Engineers, Will be Reproduced in This and Succeeding Issues of Telephony—It Touches Briefly Upon the Most Advanced and Interesting Traffic Work

By F. P. Valentine

General Superintendent of Traffic, New England Telephone & Telegraph Co.

It is the purpose of this paper to deal with a few of the many operating problems that confront a telephone company, serving a territory made up of several hundred communities of varying types ranging from a large Metropolitan area to sparsely settled rural districts.

A telephone company has but one line of goods to sell, i.e., service. The entire capital investment in telephone plant and all running expenses are for the purpose of handling the telephone traffic of its subscribers or customers, and from this service is derived the revenue of the company.

Under the prevailing form of telephone operating organization, the responsibility for handling the telephone traffic devolves upon the Traffic Department, which usually represents about one-half the employes and payroll expense of a telephone company.

In carrying out its duties, the traffic department has a two-fold responsibility; first, to the subscribers for the quality of the service that it renders to them; second, to the stockholders and subscribers for the economy with which it renders such service.

The quality of the service is directly dependent upon the effective application of suitable methods of operation. The effective application of suitable methods also bears directly upon the economy, for only by the use of such methods is it possible to obtain the maximum efficiency of force and plant. Further, both the quality and economy of service bear directly upon the satisfaction of the telephone user or customer. The quality should be such as to meet every reasonable requirement; the economy such as to enable the company to supply service to its customers at lowest possible rates compatible with a reasonable return on the investment, in order to encourage increase in subscriber department should have, in addition to a proper administra- service to the individual subscriber.

To meet these requirements it is essential that a traffic department should have, in addition to a proper administrative force, an efficient traffic engineering staff. As the work of this staff is what might be termed the production engineering of the telephone business, it is obvious that it requires a qualitative and quantitative analysis of all factors in any way related to the production of telephone service.

The principal factors entering into the production of telephone service, which must be the subject of engineering study, are as follows:

1. Quality of service.
2. Efficiency of labor.
3. Efficiency of operating methods.
4. Production efficiency of central office equipment.
5. Production efficiency of trunk and toll circuits.

The following discussion of certain phases of traffic engineering problems, in the order above indicated, is based upon some of the results of studies made in the territory of the New England Telephone & Telegraph Company, as it is with the work in this territory that the writer is most familiar. This engineering work, however, is a part of and is carried on in conjunction with that of the engineering staff of the American Telephone & Telegraph Company, for the purpose of making comprehensive fundamental studies.

Quality of Service.

From the standpoint of the telephone user, the essential qualities of telephone service are accuracy, speed of connection, and uniformity in both speed and methods of handling calls. These requirements are equally essential from the standpoint of the telephone company. Accuracy and speed of connection mean a minimum of waste effort, motion and time. Uniformity in speed and in the method of handling calls trains the telephone user to co-operate with the operator to the same end, with the resultant effect of satisfaction to the telephone user in smooth, speedy service, and for the company a maximum production efficiency by the operating force and an economical use of switchboard equipment.

As the result of constant study there has been developed a systematic method of service inspection which is now practically standardized among the larger operating companies. By means of suitable apparatus, observations are made on every step in the handling of a telephone call. By the use of stop watches the time intervals of each step in the operation are accurately observed and a code record made, sufficiently comprehensive to permit the analysis of the tabulated results of these observations. A sufficient number of calls is observed during the hours of regular traffic to insure the results being representative of the general grade of service being given in the office under observation. This service observation is practically continuous in all large exchange districts.

Equally careful analysis is made of the phraseology used by the operator in dealing with the subscriber. This latter is no small factor in accurate and speedy service. A telephone operator has to handle calls from subscribers of all types and characteristics and under all conditions. Every word and phrase used by the operator in dealing with a subscriber is the result of long and careful study and is designed to convey essential and significant information or direction in briefest possible form.

Another record essential to the analysis of service quality is what is termed the "record of service criticisms." This is especially valuable as it furnishes a record of the subscribers' opinions of the quality of service. This is a record not only of all formal complaints which are received, but also of data collected by all supervising employees in the central offices who have occasion to deal with any subscriber in connection with an abnormal telephone call. The record is made by noting in code, on a proper form, any comments received indicating the fact and nature of either then or at some previous time. Every one of either then or at some previous time. Everyone of these cases is followed up and before the record is filed for summarizing, the reasons for the unsatisfactory condition are entered thereon. Besides affording an opportunity to adjust matters to the satisfaction of the subscribers, the analysis of these criticisms furnishes valuable data as to the most frequent causes of unfavorable opinion of service quality, and affords the opportunity of eliminating or minimizing these causes. It is of the utmost importance, not

only as good business policy, but also to assist in the analysis of service quality, that every effort be made to obtain fair criticisms from the viewpoint of the customer.

Continuous study and analysis of the results of service observations together with the data obtained from the record of criticisms, has made possible the adoption of standard operating methods designed to give satisfactory service. All calls of abnormal type involving special handling, are transferred to special operators whose sole duty is to care for this class of traffic. This results in removing the most disturbing elements from the work of the "A" or subscribers' operators, and in providing special attention for such calls on the part of employees especially trained for that work.

The adoption of standard methods of operation and the setting of standards of speed and accuracy, has made it possible to reduce all operating procedure to standard sets of instructions for the guidance of all employes concerned. The tabulated results of service observations furnish the administrative force with the information as to how nearly the standards are attained, while the instructions furnish information as to how to attain them.

Efficiency of Labor.

In determining the efficiency of labor, or the production efficiency of an operating force, it is necessary that standards of labor production be established, and that provision be made for significant reports or summaries which will indicate how nearly these standards are approached. It is not sufficient merely to compare results in various ex-

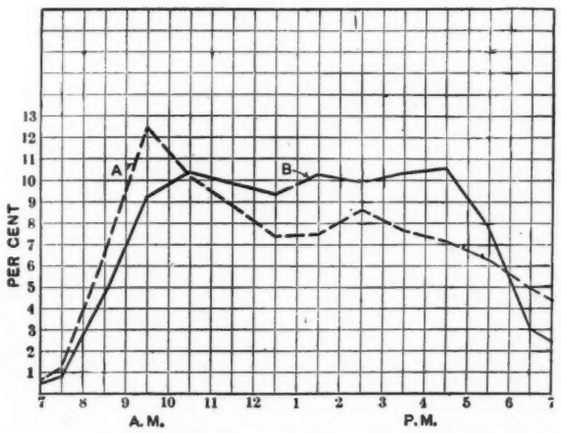


Fig. 1. Traffic Distribution, Business and Residence Districts.

changes or in the same exchange at different times on the basis of the traffic handled regardless of the conditions attendant upon its handling. Such a comparison assumes to set as a standard the operation in some particular case. It assumes that at some other place or time an operation was performed with greater efficiency, and, therefore, it should be performed here or now at the same efficiency regardless of whether it is exactly the same proposition in both places or at both times.

The operation of a telephone switchboard comprehends the handling of many different kinds of traffic, and a separate standard is required for the handling of each. To express the degree of efficiency attained as a per cent of these various standards would not only be an interminable task but would give so many individual results that their study and co-relation would be impracticable.

It is necessary, therefore, that a method be employed which in a single percentage figure will show the degree of efficiency attained. This result is accomplished in the following way:

All calls handled are expressed as though they had been of a single class. This is done by multiplying the number of calls of each class by a factor representing the ratio of the labor of handling the calls of a particular class to the labor of handling calls of the class selected as the unit class.

The standard number of these unit calls which should be handled being determined, the per cent of efficiency is readily obtained by comparing the results obtained with those specified as a standard. From the foregoing, it will be seen that this method involves not only the selection of some unit, but the determination of the number of unit calls and the number of calls of other types that may be handled by average skilled operators within a given period, and the establishment of coefficients representing the ratio of the loads of each type of call to that of the unit class.

A flat rate non-trunked call handled on a No. 1 relay board was selected as the unit call for two reasons. It is a very simple type of call and one which predominates in number in most offices. Furthermore, it is of such a class of call that the number an operator can handle depends primarily upon her ability, and not upon circuit conditions.

The determination of the number of unit calls and the number of calls of other classes that operators could handle, involved a most exhaustive study of operating loads. This study consumed a period of over two years during which many thousands of observations were made covering all types of calls, normal and abnormal, from all classes of service. As a result of this study, it was found that an average skilled operator, working in a team of five or more operators, could carry 230 unit calls per hour and maintain that rate during the entire working day, without undue physical or nervous strain, at the same time giving a standard quality of service. Furthermore it was found that, for a single hour in each half day period an operator could, without material impairment of the service, handle 25 per cent more than this number. Even this load could be exceeded at times of unusually sharp peaks in the traffic.

The ability of the force to carry the peaks at loads in excess of the average busy hour loads, is an important factor in determining operating force requirements. Fig. 1 shows in percentages the actual distribution of traffic in two offices for the day hours. The curve marked *A* is that of an office of the best type of residential subscribers, while the curve marked *B* is that of an exclusively business office. The operators at *A* can carry the busy hour traffic at loads exceeding those of the average busy hours, while the operators at *B* will carry the standard load. With an equal amount of daily traffic in both offices, the same number of operators will handle the busy hour traffic of *A* as are required to handle the busy hour traffic of *B*.

In the evolution of this system of equating calls covering two years of exhaustive study and some four years of practical application, its value and accuracy have been thoroughly tested. Its value lies not only in the fact that it furnishes a means of measuring the efficiency of labor, and is essential in measuring the efficiency of some of the other four factors mentioned in opening this discussion, but in the fact that it has opened the way to a most exhaustive analytical study of the human element upon which telephone operation is so dependent.

(To be continued).

Joint Construction with Lighting Company in Syracuse.

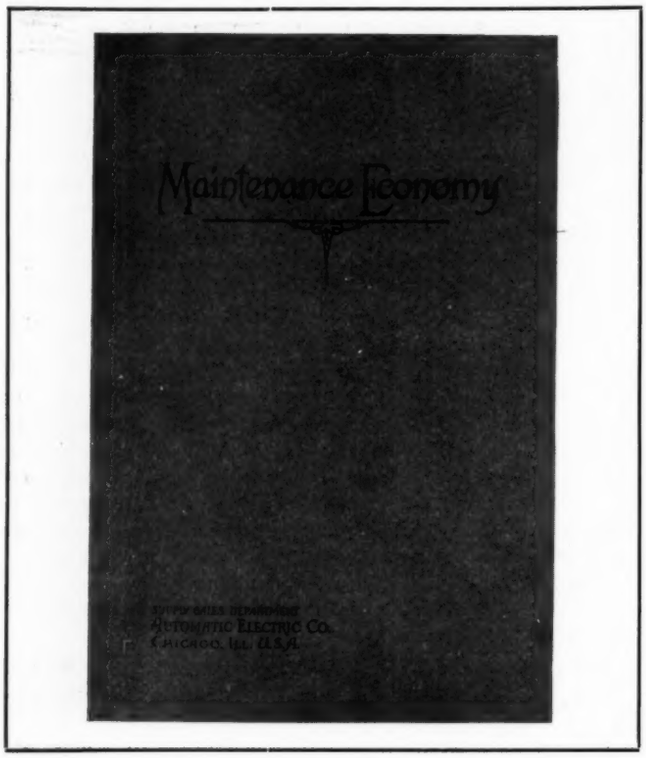
During several months past the New York Telephone Co. and the Syracuse Lighting Co. have been conducting a test of the practicability of joint construction in Syracuse. As a result, a general arrangement has been entered into whereby nearly 1,500 poles will be taken off the streets during the next two years.

From Factory and Salesroom

Conventions: North Dakota, Bismark, August 15, 16; Mississippi, New Albany, July 17, 18.

Automatic Electric's "Maintenance Economy."

"Maintenance Economy," a booklet recently issued by the Supply Sales Department of the Automatic Electric Co., Chicago, is devoted to the economy effected by the use of better telephone supplies. It describes in detail Automatic desk sets and receiver cords, switchboard cable, condensers, bank wire, jumper wire, transmitter mouthpieces, receiver shells and other supplies carried in stock by the Automatic Electric Co.



Cover of New Automatic Booklet.

The booklet also tells of the material, methods, machinery and men employed in the manufacture of these supplies. It is well illustrated, attractively printed on heavy paper and durably bound. The cover, which is brown, with heavily embossed lettering, is here reproduced. The company desires to place a copy on every telephone man's desk and will send the book on request.

A Clum Anchor Testimonial.

The Falls Electric Co., Lima, Ohio, has received the following testimonial letter among a number sent in by users of Clum Anchors:

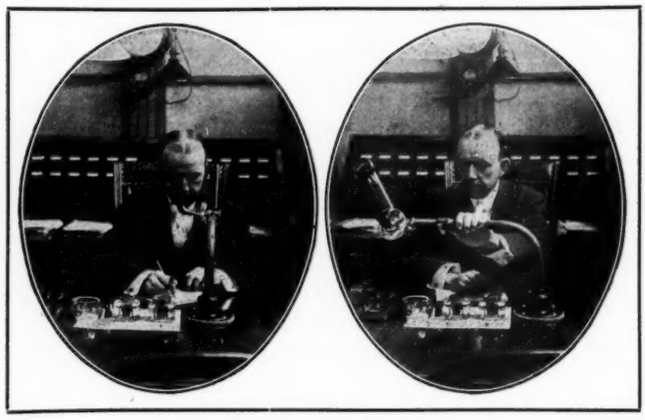
> Gentlemen: We have used over 150 Clum Anchors in the past four years and have never had one of them pull up. We use the 8-inch Clum Anchor exclusively where a patent anchor can be used. Our workmen prefer them to any other anchor.
> (Signed) The Lima Telephone & Telegraph Co.

The Falls Electric Co. would like to secure for their mailing lists the names of telephone men interested in anchors in order that they may receive all of the latest Clum Anchor literature.

The Van Akin Telephone Arm.

The Van Akin Telephone Arm was primarily designed for telephone train dispatching service and has fulfilled the expectations of the inventor in that it not only provides the very best arrangement for this class of work, but is also the device of which every busy business man should avail himself.

The induction coil, condenser, etc., comprising the transmission and signaling circuits, are mounted under the table top



Van Akin In and Out of Use.

in the commutator box, in a neat and compact manner, the set being strongly and substantially made.

When the telephone is not in use, it is swung back, either to right or left, in which position the commutator spring brushes rest on dead segments and all connections except the "ringer" stand open.

The set is designed for single or double desk; no cords to upset ink wells, or to be lifted over papers; when it is wanted on the opposite side, no twisting of cords, as they revolve with the arm. They are wired for common or local battery.

The advantages claimed for the Van Akin Telephone Arm over other types, are: No upset ink wells, no cord trouble, substantially made, clear vision, both hands free to write, both hands to sort papers, cannot fall on floor, always reliable.

Those who have had unpleasant experiences with desk sets and transmitter arms will do well to obtain and use a Van Akin telephone.

The Smith & Hemenway "Red Devil" Tools.

In our advertising pages the Smith & Hemenway Co., of New York, shows a few of the leading tools which it manu-

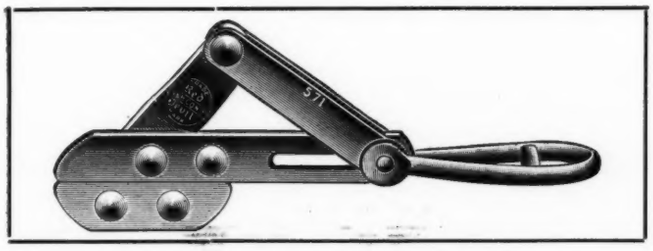
Smith & Hemenway "Buffalo" Grip.

factures under the well known brand of "Red Devil." This brand of tools, it is stated, has been on the market and sold

in all countries of the world with universal satisfaction.

The makers take a very broad view in selling the genuine "Red Devil" tools to the trade. Their confidence in the product is indicated by the following guarantees:

"To THE MERCHANTS If this tool should be returned to you for any reason it will be replaced by the manufacturers." On the opposite side of the box is the following guarantee to the



The Haven Clamp "Red Devil" Brand.

user: "If this tool is found unsatisfactory, mail it back to us and we will replace it free of charge."

This is very convincing both to the merchant and to the consumer that the manufacturers know their wares pretty well or else they would not make such guarantees.

Figure No. 1 illustrates the improved pattern of the "Buffalo" Grip, which is now being made by the "Red Devil" tool works. This grip is so constructed that a wire entering over the center will be forced into the clamp. This is a decided improvement over the old style "Buffalo" grip that has been on the market for some time and one that will be appreciated most heartily by linemen for stretching wires.

Figure No. 2 shows the improved Haven Clamp. This is a solid drop forging and is not bent over at the neck, but is made from one solid piece of metal, thereby making it, beyond any possible doubt, the manufacturers declare, an impossibility to break it.

The Smith & Hemenway Co. is pleased to notify the trade that it will have a "Red Devil" tool catalog of electricians' tools of over 90 varieties ready for delivery at an early date. Those interested in this class of construction cannot go amiss by requesting a copy for their catalog files.

Phoney Bill to the Front.

The Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y., has inaugurated a sort of "get-together" club among its employes and gave an initial "feed" recently for that purpose. The accompanying speaking likeness of Phoney Bill was on the first page of the menu, the gentleman being represented as saying:

"Be seated, please! Now then, look who's here. It's always fair weather when the Stromberg fellows get together. Getting together once in a while to talk shop, sing a song, tell a

story and eat a little food will accomplish great things for our company. Let's decide tonight to form an association for the purpose of promoting co-operation, enthusiasm and good fellowship among department heads. Who'll suggest a name for the club?"

The menu itself looks amazingly good to the casual observer on the outside and doubtless fulfilled all the expectations of "those present.'

The irrepressible Phoney Bill is again in evidence this week on the monthly blotter issued by the company. Bill is here shown as a Shriner, mounted on a camel, and declaring that "a camel can go six days without a drink, but a Shriner is not a camel."

The Stromberg-Carlson company has announced the establishment of its Ontario branch at Toronto, with offices at 72 Victoria street, with W. C. Freeman as manager. George J. Beattie, formerly Ontario sales agent, it is stated, will continue to serve the company in an advisory capacity.

Hereafter, the company says, shipments will be made from the new and complete stocks carried at this branch, all standard equipment and parts being available for immediate delivery.

A New Telephone Factory.

Announcement is made by the American Electric Co., Chicago, of its entrance into the field as a manufacturer of a complete line of telephone apparatus, which will undoubtedly prove good news to hundreds of the personal friends of the men back of this company.

This company announces that it purchased on June 20, 1911, all of the machinery, raw material, finished product, tools, dies and patents of the American Electric Telephone Co., of Chicago.

(Continued on page 36, advertising section).

Guests of Railway Telegraph Association.

(*Continued from page* 18).

R. E. Chetwood, New York.
Belvidere Brookes, New York.
A. G. Saylor, New York.
W. C. Merly, New York.
Wm. Maver, Jr., and two daughters, New York.
Richard G. Harris, Pittsburgh, Pa.
H. P. Kimball, New York.
Frank Clark Cosby, Boston.
E. A. Hawkins, New York.
D. J. Cavanaugh, Memphis, Tenn.
Edgar Lowe, Jamaica, N. Y.
Richard C. Leake, Rochester, N. Y.
Lyman E. Dodge, Rochester, N. Y.
J. L. McQuarrie, New York.
E. L. Marshall, Fremont, Ohio.
O. D. Street, New York.
R. N. Hill, New York.
R. F. Spamer, New York.
A. D. Smith, Montreal, Que.
Wirt Tassin, Chester, Pa.

Railway Telegraph and Telephone Appliance Association Holds its Annual Meeting.

The Railway Telegraph and Telephone Appliance Association held its annual meeting at the Brunswick on Tuesday, with P. W. Miller, chairman, presiding. Secretary-Treasurer Buck read the minutes of the last meeting, which were approved, as were also the expenditures for the year, including the entertainment at the Los Angeles convention.

H. P. Miller explained the objects and advantages of the association and recommended that a committee be appointed to co-operate with a similar committee from the superintendents of telegraph, in regard to entertainment, exhibits, and other arrangements for next year's meeting. This suggestion was adopted unanimously and the chair appointed R. A. Paterson, of the Duplex Metals Co.; G. K. Heyer, of the Western Electric Co.; and J. M. Lorenz, of the Central Electric Co.

Secretary-Treasurer Buck gave an interesting review of the work accomplished by the association thus far, after which officers for the coming year were elected as follows: Chairman, Avery P. Eckert, of New York, National India Rubber Co.; vice-chairman, John J. Ghegan, of New York, J. H. Bunnell & Co.; secretary-treasurer, W. E. Harkness, of New York, United States Electric Co.

The executive committee is composed of W. F. Crowell, New York Telephone Co.; W. H. Graffis, Chicago, Telephony Publishing Co.; E. E. Hudson, Orange, N. J., Thos. A. Edison, Inc.; H. P. Kimball, New York, Standard Underground Cable Co.

H. E. Merrill, New York, United States Electric Co., and H. O. Pugh, Sandwich, Ill., Sandwich Electric Co., also are members of the executive committee, holding over from last year.

The membership of the association is comprised of the following:

United States Electric Co., New York.
Edison Manufacturing Co., Orange, N. J.
J. H. Bunnell & Co., New York.
The Railroad Supply Co., Chicago.
Kerite Insulated Wire & Cable Co., New York.
Standard Underground Cable Co., Pittsburg.
General Railway Signal Co., Rochester, N. Y.
Crouse-Hinds Co., Syracuse, N. Y.
Western Electric Co., New York.
Northern Elec. & Mfg. Co., Montreal, Can.
National Dictograph Co., Jamaica, N. Y.
Central Electric Co., Chicago.
F. M. Ferrin, Boston.
National Carbon Co., Cleveland.
American Telegraph Typewriter Co., New York.
Sandwich Electric Co., Sandwich, Ill.
Ward, Drouet & Foster, Boston.
Telegraph and Telephone Age, New York.
Pocket List of Railroad Officials, New York.
Duplex Metals Co., Chester, Pa.
National India Rubber Co., New York.
Cumberland Tel. & Tel. Co., Nashville, Tenn.
C. F. Massey Co., Chicago.
Lutz-Lockwood Mfg. Co., Aldene, N. J.
J. A. Roebling's Sons Co., New York.
Kellogg Switchboard & Supply Co., Chicago.
National Telephone Selector Co., New York.
Pettingill-Andrews Co., Boston.
New York Telephone Co., New York.
Edison Storage Battery Co., Orange, N. J.
Manhattan Electrical Supply Co., New York.
W. N. Matthews & Bro., St. Louis.
The Buda Co., Harvey, Ill.
Telephony Publishing Co., Chicago.

High Wireless Telephone Tower at West Seattle, Washington.

The Commercial Wireless Telephone & Telegraph Co., of Seattle, Wash., has completed a big tower at West

Wireless Mast at West Seattle, Wash.

Seattle and expects soon to keep in touch with vessels as far as 3,000 miles out. The tower consists of eight pillars, 320 feet in height, and is situated on a bluff, which makes it over 800 feet above the level of the sea.

The apparatus to be used is that constructed by M. W. Dubilier.

The aerial for sending and receiving messages consists of 40,000 feet of phosphor bronze wire and radiates as the ribs of an umbrella. The diameter at the base is almost 1,000 feet.